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A REVISION OF THE GENERA *PRISMATOCARPUS* AND *ROELLA*.

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The two genera of Campanulaceae, *Prismatocarpus* and *Roella*, are closely allied. Indeed without studying the method of dehiscence of the fruit it is not always possible to assign some of the species to one genus or the other. Along with the small endemic South African genus *Merciera*, these two occupy a somewhat isolated position in the family. Both are confined to southern Africa and are especially characteristic of the so-called "Cape" flora of the south-west coastal region of the Union of South Africa. Indeed, *Roella* has only one, or possibly two, species extending beyond the limits of the sclerophyll vegetation of the mountain ranges of the south-west Cape Province. *Prismatocarpus* has most of its species on the mountains of the south-west but has two which extend into the arid regions of the karroo and South West Africa and one which occurs in Rhodesia. This last is not very closely allied to any of the others and may be found to be generically distinct. There are records of species of *Prismatocarpus* from the Transvaal but these are open to some doubt and require confirmation.

As originally described by L'Héritier (Sert. Ang. 2. 1788) *Prismatocarpus* included all those members of Campanulaceae with regular flowers and a long narrow ovary. In 1830 it was restricted by A. DeCandolle (Monog. Camp. 57 & 163) and redefined as characterized by a 2-chambered ovary and a fruit with dehiscence by 5 longitudinal splits. Those plants with a 3-chambered ovary were transferred to the genus *Specularia* Heist. As restricted by A. DeCandolle the genus is a natural one with uniform features and a limited geographical range. His connotation has been generally accepted for the past century.

Roella was founded by Linnaeus in 1753 who then described two species, one of which has been shown not really to belong to the genus at all (cf. J. S. Af. Bot. 12. 107. 1946). His son added some further species.

Both genera were monographed by A. DeCandolle in 1830 (Monog. Camp.), and again in 1839 (DC. Prodr. 7.). Under *Prismatocarpus* A. DeCandolle recognized 12 species in 1830 and 17 in 1839. Under *Roella* he had 11 species in 1830 and 16 with a further 6 in an addendum in 1839.

Sonder in 1865 revised both genera for the Flora Capensis when he recognized 14 species under *Prismatocarpus* and 12 under *Roella*. Since that time no reconsideration of either genus has been undertaken though some species have been added to both genera from time to time. While by no means all the species described by previous authors have been upheld, the numbers recognized in the present account are 30 in *Prismatocarpus* and 25 in *Roella*. Of these 11 in *Prismatocarpus* and 3 in *Roella* are described for the first time. Some new varieties are also described.

The number of new species brought to light is to a large extent the result of more intensive investigation of the higher mountains in recent years. In this connection the collections made by Miss E. Esterhuysen of the Bolus Herbarium, University of Cape Town, have been especially valuable and have been the source of several new discoveries. It is certain that further exploration of the mountains and especially of the more isolated ranges will result in an increase in the number of known species. Indeed at present there exist cases of specimens which do not agree with any recognized species but of which material is insufficient for description.

Wherever possible the descriptions have been drawn up from an examination of living material. Certain features of these plants are apt to be obscured in the dried state. Plants which are clearly separable when living are sometimes very much alike dried. Such features as the position and colour of the leaves, the colour, shape and texture of the flower are often obscured in dried material.

In both genera the species have been grouped under series characterized by both vegetative and floral features. In *Prismatocarpus* two well-marked subgenera are recognized: this grouping was suggested by A. DeCandolle (DC. Prodr. 7. 442. 1839) but he treated the divisions as sections to which he did not give names.

In the course of this revision, in addition to the author's own collections, specimens and material from the following herbaria have been examined. The symbols for reference are those put forward by Lanjouw (Chron. Bot. 3. 1937 & 5. 1939).

Bolus Herbarium, University of Cape Town	..	BOL
Dept. of Botany, University of Cape Town	..	CT
South African Museum, Cape Town		CTM
National Botanic Gardens, Kirstenbosch		KIR
National Herbarium, Pretoria		PRE
Albany Museum, Grahamstown		GRA
University, Johannesburg		J
Royal Botanic Gardens, Kew		K
British Museum (Nat. Hist.), London		BM
University of Oxford		OXF
Botany School, Cambridge		CGE
Musée d'Histoire Naturelle, Paris		P
Conservatoire de Botanique, Geneva		G
Na urhistorika Riksmuseet, Stockholm		S

In addition reference has been made to the Linnaean herbarium in London and to the Thunberg herbarium in Uppsala.

Thanks are returned to the curators and staffs of the various herbaria for assistance both in investigations in the various institutions and for permitting the borrowing of sheets for examination. To the curator of the Bolus Herbarium especial thanks are due for arranging for the loan of material from other South African institutions and for many facilities in the course of the work.

In the quotation of records under the various species the collection in which it occurs is included. This has been found advisable as in several of the older collections it has been found that more than one species has been included under a number.

With very few exceptions the type specimens of the species have been examined. These are quoted separately.

Finally special thanks are returned to Captain T. M. Salter, R.N. (ret'd.), who has most kindly checked the Latin used in the diagnoses of new species.

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PRISTOCARPUS.

L'Hérit. Sert. Ang. 2. 1788. *emend.* A.DC. Monog. Camp. 57 & 168. 1830.

Herbs or shrublets. Leaves small, simple, alternate or less often opposite. Flowers terminal or axillary, usually regular. Corolla longer than the calyx. Stamens free from the corolla, the filaments usually dilated and ciliate at the base. Style bifid. Ovary inferior, narrow,

2-chambered, with numerous ovules. Fruit dry, finally splitting from the top into five, the splits alternate with the persistent or deciduous calyx lobes.

Rather variable in habit. Many of the species more or less ericoid. In flower and other features allied to *Roella*.

The type species is *R. pedunculatus* (Berg.) A.DC (*P. roelloides* (L.f) Sond.).

KEY TO THE SUBGENERA.

1. Calyx lobes almost free: corolla campanulate or funnel-shaped: disc hemispherical: style shorter than the corolla 1. EUPRISMATOCARPUS
1. Calyx lobes distinctly connate: corolla hypocrateriform, the lobes not equal: disc flat: style much longer than the corolla 2. AFROTACHELIUM

Sub-gen. 1. EUPRISMATOCARPUS Adamson s-gen. nov.

Corolla campanulata. Lobi calycini fere liberi. Filamenta staminum basi dilatata ciliataque. Stylus corolla brevior. Discus hemisphericus.

Herbs, shrublets or woody plants, erect or sprawling. Flowers solitary or in a branched inflorescence, with bracts and usually bracteoles. Flowers regular. Calyx lobes almost free. Corolla campanulate or funnel-shaped, longer than the stamens or style. Filaments of the stamens dilated and ciliate at the base. Disc hemispherical, sometimes enlarged after pollination.

KEY TO THE SERIES.

1. Flowers in a leafless terminal inflorescence: bracts smaller than the leaves 1. FRUTICOSI
1. Flowers mostly axillary: bracts like the leaves or larger.
 2. Bracts larger than the leaves: flowers in heads or in an apparent raceme: shrubby perennials 2. STRICTI
 2. Bracts like the leaves: flowers usually axillary, solitary: small or prostrate plants 3. NITIDI

Series 1. FRUTICOSI.

Perennes vel annuae. Folia alterna saepe conferta. Inflorescentia terminalis aphylla saepissime ramosa, bracteis subulatis vel linearibus foliis minoribus. Flores saepissime pedicellati.

Perennials usually woody at the base, or annuals. Leaves linear, often crowded. Inflorescence terminal, branched, with long internodes and very small linear or subulate bracts. Flowers usually pedicellate.

KEY TO THE SPECIES.

1. Perennials: leaves crowded.
 2. Ovary and calyx densely hairy: flowers clustered 2. *altiflorus*
 2. Ovary and calyx glabrous: flowers distant.
 3. Leaves lanceolate, dentate, decurrent 6. *decurrens*
 3. Leaves linear, entire, not decurrent.
 4. Calyx lobes as long as or longer than the corolla tube.
 5. Calyx lobes flat: corolla widely funnel-shaped; inflorescence branches stout 1. *pedunculatus*
 5. Calyx lobes subulate or very narrow: corolla campanulate: inflorescence branches slender.
 6. Inflorescence much branched: corolla dark outside: fruit very narrow: leaves usually ascending 3. *fruticosus*
 6. Inflorescence little branched, the flowers apparently racemose: corolla concolorous: fruit swollen: leaves short, squarrose 4. *lycopodioides*
 4. Calyx lobes shorter than the corolla tube.
 7. Calyx lobes very narrow, usually inrolled: corolla darker outside 3. *fruticosus*
 7. Calyx lobes flat, not inrolled; corolla concolorous.
 8. Calyx constricted below the lobes: corolla white or pale blue: inflorescence with slender branches 5. *brevilobus*
 8. Calyx not constricted: the lobes connate: corolla deep blue: inflorescence with few branches or the flowers sessile 7. *alpinus*
 1. Annuals: leaves few, scattered.
 9. Leaves undulate: inflorescence branches divaricate: corolla divided almost to the base 8. *crispus*
 9. Leaves flat: inflorescence branches ascending: corolla tube as long as the lobes 9. *Hildebrandtii*

1. *P. pedunculatus* (Berg.) A.DC. in DC. Prodr. 7. 443. 1839.

Roella pedunculata Berg. Descr. Pl. Cap. 42. 1767. *Campanula pedunculata* Gmel. Syst. Nat. 2. 352. 1791. *P. paniculatus* L'Hérit. Sert. Ang.

2. 1788. *P. interruptus* L'Hérit. l.c. *P. roelloides* (L.f.) Sond. Fl. Cap. 3. 586. 1865. *Polemonium roelloides* L.f. Supp. Pl. 139. 1781. *Retzia roelloides* Spreng. Syst. 1. 589. 1821. *P. grandiflorus* A.DC. in DC. Prodr. 7. 443. 1839. *Roella ericoides* Spreng. Syst. 1. 723. 1825. *non* Buëk *nec* Good.

An erect, diffuse or sprawling shrublet, 15—60 cm. high. Stems more or less woody, shortly hairy or rarely glabrous, branched mostly from the base. Leaves usually crowded, 0.7—2 cm. long, 2—4 mm. wide, flat, usually somewhat revolute, coarsely ciliate at least at the base, often with stout hairs on the broad and slightly projecting midrib. Axillary tufts of small leaves usually present. Inflorescence terminal, the peduncle glabrous, rather stout, variable in length: branches few or many, often almost divaricate. Flowers few or many, occasionally clustered but commonly distant. Bracts like the leaves but smaller, distant, concave above. Calyx lobes linear, 0.5—1 cm. long, 1—2 mm. wide, glabrous or less often ciliate, as long as or longer than the corolla tube. Corolla pale blue, violet or white, widely funnel-shaped or almost rotate, 1—2.5 cm. long, divided to more than half-way, the lobes acute. Ovary glabrous. Fruit 1.5—3 cm. long.

Flats and lower mountain slopes. Most common on sand. Widely spread through the western and south-western districts.

Variable in size, habit, leaf arrangement, extent and branching of the inflorescence, also in the size of the corolla and length of the calyx. The variations seem in part correlated with habit and in part to represent definite races. While the extremes appear very different they are connected by all stages of intermediate. In very general terms two forms are distinguishable, the one with ciliate calyx lobes not longer than the corolla tube, the other with glabrous lobes—usually longer than the corolla tube. In his original description Bergius described a plant of the first form. L'Héritier and Linnaeus fil. on the other hand described the second and commoner form. As the two merge completely no separation is possible.

P. interruptus is merely a state of dry or exposed habitats with a short peduncle and almost sessile sometimes clustered flowers.

P. grandiflorus has larger flowers but no other constant feature of difference. It is a form from sandy soils in the northern districts.

VAN RHYNSDORP: Rd. to Calvinia *Esterhuysen* 736 (BOL). CLANWILLIAM: Clanwilliam *Levy's* 1341 (CT.); *Pillans* 8709 (BOL), 8772 (BOL, K, KIR, PRE); Donkerkloof *Leipoldt* 570 (BOL, K, PRE); *Stokoe* (CTM); Krakadouw *Leipoldt* 570, 571 (CTM); Olifants River *Esterhuysen* 1299 (KIR); *Pearson* 5280 (BOL, K) 7202 (BOL, *CTM); *Stephens* 6379 (CTM); Hex River *Adamson* 4024; *Pearson* 5250 (BOL); *Pillans* 9060 (BOL); Greys Pass *Adamson* 4399; *Godman* 779 (BM);

Esterhuysen 7135 (BOL); *Pearson* 3524 (BOL), 5126 (BOL, K), 5280 (K); Warm Baths *L. Bolus* (K). PIKETBERG: *Piketberg Drège* (G); *Bolus* 13667 (BOL, PRE); *Guthrie* 2653 (BOL); *Pearson* 7120 (BOL); *Pillans* 7915 (BOL, K), 8587 (BOL, PRE), 8618 (BOL, K, KIR, PRE); De Hoek *Compton* 15002 (KIR, PRE). MALMESBURY: Darling *Bolus* 4304 (BM, BOL, K); *Drège* 6329 (BM, CGE, G, K, P, S) s.n. (PRE); *Levy's* 3276 (CT). CERES: *Schurffeberg Esterhuysen* 14720 (BOL); Cold Bokkeveld *Schlechter* 10181 (BM, BOL, GRA, K); Ceres *Liebenberg* 4322 (PRE); Michells Pass *Bolus* 5104 (BOL, K); *Compton* 10056 (KIR); *Esterhuysen* 14139 (BOL); *Hafstrom & Acock* 2007 (PRE, S); Mosterts Hoek Twins *Esterhuysen* 9914 (BOL); *Wasserfall* 806 (KIR); *Wolseley Schlechter* 9050 (S), 9070 (BM, G, GRA, K, P, PRE, S). TULBAGH: Tulbagh *Ecklon & Zeyher* (CTM); Witzenberg *Adamson* (CTM); Waterfall *Ecklon & Zeyher* (S); *Zeyher* 1077 (BM, CGE, CTM, K, P, PRE, S); Roodesand *Drège* 6329 (G, BM, K, CGE, S, P, PRE); Steendal *Zeyher* (CTM). WORCESTER: Worcester *Ecklon & Zeyher* 2391 (CTM), 3146 (CTM), sn (S); *Fine* G72 (PRE); *Story* 3594 (PRE); *van Breda* 181 (PRE, K); *Zeyher* (CTM); Hex River Mts. *Davidson* 16 (CTM); *Rehmann* 2474 (K); Keeromsberg *Esterhuysen* 9220 (BOL, PRE); Bonteberg *Compton* 9947 (KIR); *Esterhuysen* 3662 (BOL, PRE); Breede River *Drège* (G, P, S); *Ecklon & Zeyher* 3 (S); Goudini Road *Levy's* 4421 (CT); Blaauwkoop *Esterhuysen* 19643 (BOL). CAPE: Klipfontein *Ecklon & Zeyher* (CTM); *Zeyher* (CTM). CALEDON: Houwhoek *Bowie* (BM); Villiersdorp *Bolus* 5103 (BOL); *Esterhuysen* 4400 (BOL, KIR, PRE); Genadendal *Ecklon* (S); Sondereinde Mts. *Esterhuysen* 4486 (BOL, KIR, PRE); *Ecklon & Zeyher* 3146 (CTM); *Schlechter* 5630 (GRA); *Zeyher* 3145b (P), 3146 (K, P, PRE, S). BREDASDORP: Elim *Bolus* 8573 (BOL); Appelkraal *Stokoe* 9380 (BOL); Kathoek *Esterhuysen* 4448 (BOL, KIR, PRE). ROBERTSON: Bushmans River *Levy's* (BOL); *Lewis* (KIR); McGregor *Esterhuysen* 4465 (BOL); nr. Storms Vlei *Esterhuysen* 4463 (BOL, KIR). MONTAGU: Batriedale *Levy's* 558 (CT). SWELLENDDAM: Swellendam *Ecklon & Zeyher* 3146 (CTM), sn (S); *Galpin* 4309 (BOL, GRA, PRE); Buffelsjaagts *Zeyher* 3145 (CTM, K, P, S), 3145a (P); Storms Vlei *Esterhuysen* 4469 (BOL); *Compton* 5733 (KIR); *Levy's* 3475 (CT); Zuurbraak *Levy's* 558 (CT); Bushmans River *Walgate* 345a (KIR); Bonnievale *Marloth* 11840 (PRE). RIVERSDALE: Riversdale *Muir* 2781 (PRE). ALEXANDRIA: Alexandria *Galpin* 10836 (PRE). WITHOUT LOCALITY: *Auge* (BM); *Burman* (G); *Ecklon* (OXF); *Ecklon & Zeyher* 94; 11 (GRA), 2390 (OXF, PRE), 2391 (P); sn (CGE); "*Hort. Kew*" (BM); *Lambert* (S); *Masson* (BM); *Moquin* (P); *Moricand* (P); *Niven* (BM); *Oldenburg* (BM); *Pappe* (K); *Ryder* (K); *Thunberg* (S); *Verreaux* (BM, G, P); *Wallich* (K); *Zeyher* (S), 1077 (BM, CGE, CTM, G, K, P).

2. *P. altiflorus* L'Hérit. Sert. Ang. 2. 1788.

Stems slender, often weak though slightly woody at the base, up to 1 m. high, unbranched or branching from the base: young stems covered with very short hairs mixed with fewer coarse white ones. Leaves scattered, linear-lanceolate, 1—1.5 cm. long, revolute, coarsely ciliate and with coarse stout hairs on the midrib below, most often with axillary fascicles of small leaves. Inflorescence unbranched or with few short branches: peduncle stout, erect, glabrous, 3—50 cm. long, with scattered bracts 2—5 cm. apart, the uppermost with flowers in the axil. Flowers sessile or nearly so, the terminal in groups of three, the lateral solitary. Bracts linear about 1 cm. long, hairy. Calyx and ovary densely covered with spreading hairs. Calyx lobes lanceolate, 5—6 mm. long. Corolla cup-shaped, 1—2 cm. long, blue, pale violet or white. Ovary about 1—1.5 cm. long. Fruit 3—4.5 cm. long.

Rather rare on sandy soils at low altitudes in the northern areas.

The type is *Masson* in herb Brit. Mus.

A very distinctive species. The stems are commonly supported by surrounding bushes.

CLANWILLIAM: Keerom *Pillans* 8731 (BOL, CTM, K, KIR, PRE); *Esterhuysen* 17844 (BOL). CERES: Onderboskloof *Esterhuysen* 14304 (BOL). WITHOUT LOCALITY: *Masson* (BM).

3. *P. fruticosus* L'Hérit. Sert. Ang. 2. 1788.

P. subulatus A.DC. Monog. Camp. 166. 1830. *Campanula subulata* Thunb. Prodr. Pl; Cap. 38. 1794. *P. Bergianus* Cham. Linnaea 8. 199. 1833. *Lightfootia ciliata* Spreng. Syst. 1. 809. 1825 non Sond.

A diffuse shrublet, much more slender than *P. pedunculatus*. Stems woody at least at the base, 10—60 cm. high, the younger minutely downy, covered with leaves above, bare below, the branches ascending. Leaves linear, 0.5—2 cm. long or more, spreading or more often ascending, often falcate, flat or concave above, usually inrolled and subulate, rounded below, glabrous except for short stout coarse cilia near the base, with or without axillary tufts of smaller leaves. Inflorescence leafless, much branched, terminal also sometimes from the upper axils, 5—50 cm. long. Peduncle glabrous, red or brown, bare or with a few small distant bracts, at the top bearing slender forking branches. Bracts 4—8 mm. long, subulate, glabrous or ciliate. Flowers solitary, pedicellate. Calyx lobes very narrow, 3—5 mm. long, acute, flat or commonly inrolled, glabrous or less often ciliate, shorter than the corolla tube, slightly spreading in the bud and in fruit. Corolla 0.6—1.5 cm. long, campanulate, white but brown or purple externally, the lobes usually somewhat shorter than the tube. Ovary glabrous. Fruit very narrow, 1—3 cm. long.

Common on dry mountain slopes in the western and south-western districts. Flowers most freely in open places or after fires.

The type is *Masson* in herb B.M. L'Héritier regarded *Campanula fruticosa* L. Sp. Pl. 168. 1753 as synonymous with his species. This is a doubtful species which many have considered as a *Lightfootia* and as not belonging to this genus. There is no Linnean specimen.

Variable in height, branching of the inflorescence and in flower size. The size of the leaf and the presence or absence of axillary tufts are dependent on season and on habitat. There are no satisfactory features by which either *P. subulatus* or *P. Bergianus* can be separated. The variety *penicillatus* (*P. subulatus* var. *penicillatus* A.DC. in DC. Prod. 7. 444. 1839) cannot be maintained: the presence or absence of hairs on the corolla lobes is a very variable feature and one that does not seem to be correlated with other characters.

Distinguished from *P. pedunculatus* by the habit, involute leaves, slender inflorescence, and the calyx and corolla. Much like the two following species. Forms with short calyx lobes look very much like *P. brevilibus*. Plants growing in sheltered places at high altitudes may have an almost concolorous corolla.

CLANWILLIAM: Pakhuis Pass *Esterhuysen* 3710 (BOL), 7397 (BOL, PRE); *Leipoldt* 659 (CTM), 3709 (PRE), 3710 (PRE); Clanwilliam *Leipoldt* 4348 (KIR, PRE), sn (BOL); *Rogers* 16851 (BOL); Keerom *Esterhuysen* 17866 (BOL); Krakadouw *Adamson* 457; Crystal Pool *Esterhuysen* 4592 (BOL, PRE); Donkerkloof *Stokoe* (CTM); Juriesberg *Compton* 6253 (KIR); Vensterberg *Esterhuysen* 2546 (BOL); Uitkyk *Bond* 1417 (KIR); Elandsfontein van Breda 228 (PRE). CERES: Sneeuwberg *Esterhuysen* 12749 (BOL, KIR, PRE); Elands Kloof *Adamson* 1659, 3139; *Compton* 19454 (KIR); *Drège* 6327 (S.); *Esterhuysen* 4140 (BOL); *Levy's* 5097 (CT); *Stokoe* (CTM); Olifants River Mts. *Esterhuysen* 13375 (BOL, K, PRE); Cold Bokkeveld Mts. *Adamson* 1569 (CT, PRE), 4109, 4112, 4114, 4119, 4122, 4123; *Compton* 12502 (KIR); *Schuurteberg* *Lewis* (CTM); *Hansiesberg* *Compton* 16686 (KIR); *Baviaansberg* *Compton* 12846 (KIR); 12853 (KIR); Gydo Pass *Esterhuysen* 3954 (BOL); *Visgat* *Esterhuysen* 13431 (BOL, PRE); *Michells Pass* *Wall* 18, 82/39, 84/39 (S.); *Zandfontein* *Barker* 4467 (KIR); *Laken Vlei* *E. P. Phillips* 1977 (CTM). MALMESBURY: Mamre *L. Bolus* (BOL); *Galpin* 12627 (PRE); *Riebeck* *Kasteel* *Adamson* 4415; *Salter* 2011 (BM, BOL, K). TULBAGH: *Witzenberg* *Andreae* 191 (PRE); *Klein Winterhoek* *Esterhuysen* 13754 (PRE). LAINGSBURG: *Tweedside* *Marloth* 12098 (PRE); *Witteberg* *Compton* 2787 (BOL, K). WORCESTER: Hex River Mts. *Rehmann* 2594 (BOL), 2694 (K); *Stokoe* 3096 (PRE); *Tyson* 744 (CTM, PRE); *Matroosberg* *Marloth* 2366 (PRE); *E. P. Phillips* 1977 (CTM); *De Doorns* *Bolus* 13152 (BOL);

Fonteintjesberg *Esterhuysen* 8774 (BOL); Onklaarberg *R. H. Marloth* 110 (PRE); Worcester *Zeyher* 1078 (BM, G, K, P), 1078a (P), 2393 (S); Brandvlei *Rehmann* 2470 (BM); Bonteberg *Compton* 9951 (KIR); *Esterhuysen* 3650 (BOL); Du Toits Peak *Drège* (S); Du Toits Kloof *Drège* (G, P, S); *Esterhuysen* 14350 (BOL, PRE); *Tyson* (CTM); Bains Kloof *Bolus* 4058 (BOL); *Esterhuysen* 1983 (PRE); *Kies* (KIR); *Wall* 80/39 (S); *Walgate* 245 (KIR). PAARL: Wellington *Sneeuwkop Leipoldt* 641 (GRA); Witte River *Adamson* 4382, 4385; *Galpin* 12628 (K, PRE); Haalhoek Spitzkop *Esterhuysen* 13519 (BOL); Du Toits Kloof Pass *Adamson* 4330; Wemmershoek *Compton* 10129 (KIR); *Esterhuysen* 4049 (BOL, PRE), 11344 (BOL, PRE); April Peak *Esterhuysen* 4102 (BOL, PRE); *Leipoldt* 3710 (BOL, PRE); Berg River Hoek *Compton* 8355, 12976, 15634 (KIR) *Esterhuysen* 10082 (KIR, PRE); Franschhoek Pass *Adamson* 4086, 4089, 4092; Franschhoek *Guthrie* 2273 (KIR); *Rodin* 3074 (BOL); Drakenstein *Bolus* 4058 (BM); *Galpin* 10616 (PRE); *Tyson* (CTM); Alexanders Kloof *Wallich* (BM); Paarlberg *Tyson* 961 (BM, CTM); Hercules Pillar *Hafstrom & Acock* (S.); Salem *Galpin* (BOL). STELLENBOSCH: Eerste River *Zeyher* 3147 (CTM); Brakenfel *Acock* 150 (S); Bottelary *Acock* 19 (S); Stellenbosch *Garside* 677 (K); Jonkershoek *Esterhuysen* 11487 (BOL, PRE); Helderberg *Galpin* 12317, 12342 (K, PRE); Gordons Bay *Bolus* 9818 (BOL). CAPE: Melkbosch *Wasserfall* 170, 777 (KIR); Klipheuvel *Zeyher* 1078 (BM, CTM, K); Vygeskraal *Wolley-Dod* 181 (BM, BOL, K); Milnerton *Hafstrom* (S); Cape Town *de Castelnau* 368 (P); Raapenberg *Guthrie* 999 (CT); *Zeyher* 1078 (BOL); Table Mt. *Adamson* (CT), 2781; *Ecklon* (S); *Wahlberg* (S); Orange Kloof *Compton* 19387 (KIR); Chapmans Peak *Compton* 8480 (KIR); Noordhoek Mts. *Adamson* 2435; Vlaggenberg *Adamson* 1749, 2387; Tokai *Guthrie* 1501 (CT); *Wolley-Dod* 1966 (BOL); Wynberg *Burchell* 785 (K); Steenberg *Adamson* 3492; *Compton* 10297, 17882 (KIR); *Kensit* (CT); *Levyns* (CT); *Salter* 5945 (CT); Muizenberg *Bolus* 4652 (BOL); Simons-town *Adamson* 824 (PRE); *Bolus* 4653 (BM, K); *Moss* 7432 (BM); *Schlechter* 306 (BM, CGE, GRA, G, P, PRE); Klaver Valley *Adamson* 824; *Moss* 7505 (BM); *Salter* 292 30 (BM), 2041 (BM, K); Red Hill *Penfold* (KIR); Vogelfontein *Adamson* 3105; Smitswinkel *Adamson* 1589; *Compton* 15574 (KIR). CALEDON: Sir Lowry Pass *Adamson* 4157; *Hafstrom* (S); *Schlechter* 7274 (BM, G, GRA, K, P, S); Hottentots Holland *Pappe* (CTM); Houwhoek *Adamson* 4416; *Guthrie* 2273 (KIR); *Schlechter* 7375 (GRA); Paardekop *Stokoe* (CTM, PRE); Villiersdorp *Adamson* 4133; Stettynsberg *Esterhuysen* 11103 (BOL); Caledon *Bolus* (PRE); *Ecklon & Zeyher* 1078 (CGE, OXF, S), 2393 (S); *O. Kuntze* (K); *MacOwan* 3177 (CTM), sn (GRA); *Purcell* (CTM); *Verreaux* (G); Swartberg *Ecklon & Zeyher* 2373 (CTM); *Zeyher* 1078 (CTM, S.), 1078b (PRE); Genadendal

Burchell 7596 (K), 7969 (K); *Ecklon & Zeyher* 81 (S); *Drège* 6327 (G, S), 6327a (CGE, G, K, OXF, P, S); *Gillett* 347 (BOL); *Greyton Gillett* 865 (BOL); *Stokoe* (CTM); *Sondereinde River Bowie* (BM); *Stanford Adamson* 4130. ROBERTSON: *Sondereinde Mts. Adamson* 4424, 4444. MONTAGU: *Baths Guthrie* 2762 (KIR); *Wagenboomsberg Compton* 10287 (KIR). UNIONDALE: *Long Kloof de Castelnau* 299 (P). WITHOUT LOCALITY: *Bowie & Cunningham* 113 (BM); *Harvey* 211 (BM, K); *Masson* (BM); *Oldenburg* 12 (BM); *Wallich* (G., K).

A specimen (*Rehmann* 5889 (BM)) is labelled "Houtbosch, Transvaal". The locality requires confirmation.

4. *P. lycopodioides* A.DC. in DC. Prodr. 7. 443. 1839.

P. subulatus var. *pauciflorus* Sond. Fl. Cap. 3. 587. 1865.

Stems many from a woody base, much branched, rarely over 10—15 cm. long, sprawling or forming small tufts or loose cushions. Leaves crowded, squarrose or the older reflexed, short, 3—4 or rarely up to 7 mm. long, linear, coarsely ciliate, most often fasciculate. Inflorescence slender, leafless, with few branches, the flowers 1—5, more or less racemose. Pedicels short, 2—5 mm. long. Bracts small, coarsely ciliate. Calyx lobes glabrous, very narrow, 3—5 mm. long, acute, keeled, longer than the corolla tube. Corolla white, rather delicate, widely campanulate, 0.5—0.6 cm. long, the lobes as long as the tube. Fruit rather swollen, glabrous, 1.3—1.8 cm. long, 2—3 mm. diam., usually green.

Among rocks on the upper parts of mountains in the Worcester-Paarl region.

The type is *Drège* 6328 in herb DC., Geneva.

Distinguished from *P. fruticosus* by the habit; the short squarrose leaves; the little-branched inflorescence with shortly stalked flowers; the small concolorous flowers with a delicate corolla; and the swollen fruits. From *P. breviflorus* it is separated by the calyx and fruit.

WORCESTER: *Du Toits Kloof Drège* 6328 (G); *Du Toits Peak Esterhuysen* 8598 (BOL, KIR); *Bains Kloof Schlechter* 9171 (BM, G, GRA, K, P, PRE). PAARL: *Wemmershoek Andreae* 775 (PRE); *Esterhuysen* 11381 (BOL, CTM, KIR, PRE); *Seven Sisters Esterhuysen* 13729 (BOL, K, KIR), 18319 (BOL); *Banhoe Peak Esterhuysen* 14363 (BOL).

Var. *hispidus* Adamson var. nov.

A typo differt caulibus longioribus erectis; foliis sparsis longioribus hispidociliatis; calyce et ovario breviter hispido; corolla campanulata tubo lobis longiore.

Stems erect, usually unbranched, hispid, up to 30 cm. high. Leaves scattered, fasciculate, linear, 0.4—0.8 cm. long, flat, slightly revolute, the edges and midrib below with many stout white rigid hairs. Peduncles

glabrous. Calyx and ovary hispid with short white hairs. Calyx lobes 4 mm. long. Corolla campanulate, 0.6—1 cm. long, the lobes shorter than the tube. Fruit up to 2 cm. long, slightly swollen, more or less glabrescent.

Sand at the head of the Wemmershoek Valley.

The type is *Esterhuysen* 17661 in herb Bolus.

A much taller plant than the ordinary form with erect hispid stems in bunches. Leaves scattered, 0.3—0.5 cm. apart, hispid. Ovary densely covered with short stiff hairs when young but somewhat glabrescent in fruit.

PAARL: Wemmershoek *Esterhuysen* 17661 (BOL).

5. *P. brevibolus* A.DC. in DC. Prodr. 7. 443. 1839.

Stems branched, erect or procumbent, sometimes sprawling or almost tufted, woody at the base, the younger glabrous or covered with minute hairs usually mixed with some larger ones. Leaves linear, erect or incurved, sometimes secund or falcate, 1.5—3 cm. long, concave above, rounded below, rolled when dry, usually with coarse distant cilia, less often glabrous, often without axillary fascicles. Inflorescence slender, leafless, branched, the ultimate branches forking or racemose. Flowers pedicellate. Bracts very small, often deciduous. Calyx lobes 2—3 or rarely 4 mm. long, flat, subacute, usually glabrous, much shorter than the corolla tube, erect in the bud and in fruit. Calyx distinctly constricted below the lobes, most apparent at the time the corolla fades. Corolla funnel-shaped or rather widely campanulate, 0.5—1.2 cm. long, white, blue or white with blue markings concolorous, rather thin, the lobes shorter than the tube. Fruit very narrow, 1.5—2.5 cm. long.

Bushy mountain slopes or among rocks on the ranges along the west coast, not extending along the south coast.

The type is *Drège* 1949b in herb DC., Geneva.

Variable in size, in habit, and in the size of the corolla. Plants from high altitudes may have very short leaves and short decumbent or prostrate stems forming loose mats or cushions. While the extreme forms look very distinctive there are all stages of intermediate. Usually less branched than *P. fruticosus* and readily distinguished by the calyx and concolorous corolla of thinner texture.

CLANWILLIAM: Middelberg Plateau *Esterhuysen* 13795 (BOL, PRE); Sneeuwberg *Esterhuysen* 13820 (BOL, p. pte), 13823 (BOL, K, PRE). CERES: Cold Bokkeveld *Sir F. Gray* (K); Tafelberg *Stokoe* (CTM); Elands Kloof *Esterhuysen* 18446 (BOL); Schuurfteberg *Adamson* 3923; Gydo Pass *Isaac* (BOL); Ceres *Guthrie* (BOL); Valsch Gat *Esterhuysen* 4389 (BOL); Baviaansberg *Compton* 12883 (KIR); Laken Vlei *E. P. Phillips*

1976 (CTM). TULBAGH: Gt. Winterhoek *Galpin* 12620 (K, PRE), 12621 (K); *E. P. Phillips* 1795 (CTM); Kl. Winterhoek *Esterhuysen* 13753 (BOL, K, PRE), 19760 (BOL); Sneeuwgat *E. P. Phillips* (CTM). MALMESBURY: Mamre *Salter* 2076 (BM); *Penfold* 248 (KIR). WORCESTER: Hex River Mts. *Esterhuysen* 8738 (BOL); Mt. Brodie *Esterhuysen* 8751 (BOL); Matroosberg *E. P. Phillips* 1976 (CTM); Fonteintjesberg *Esterhuysen* 8765 (BOL); Waaihoek Peak *Esterhuysen* 8630 (BOL), 9861 (BOL, KIR, PRE), 9915 (BOL), 15124 (BOL); *Galpin* 12738 (PRE); Observation Peak *Esterhuysen* 8630 (BOL); Du Toits Peak *Esterhuysen* 8606 (BOL). PAARL: Pic Blanc *Esterhuysen* 1659 (BOL); Wellington Sneeuwkop Up. *Esterhuysen* 12417 (BOL); Lr. *Esterhuysen* 8655 (BOL); Haalhoek Spitzkop *Esterhuysen* 15168 (BOL); Berg River Hoek *Drège* 1949 (BM, CGE, G, K, OXF, P, S), 1949a (G, K, P), 1949b (CGE, G, OXF, P, S); Wemmershoek *Andreae* 797 (PRE); Banhoek Peak *Esterhuysen* 14362 (BOL, PRE). STELLENBOSCH: Stellenbosch *Garside* 447 (K); *Penther* 2750 (BM); Jonkershoek Twins *Esterhuysen* 18483 (BOL); Steenbras River Mouth *Adamson* 4030, 4033; Hottentots Holland *Ecklon & Zeyher* 2395 (CTM); Banhoek *Esterhuysen* 19897 (BOL). CALEDON: Villiersdorp *Salter* 2119 (BM, BOL); Viljoens Pass *Gillett* 689 (BOL); *Salter* 2023 (K), 2028 (BM, K); Houwhoek *Schlechter* 7350 (BM, G, K, P, PRE, CTM); Genadendal *Bolus* 632 (BM, CTM, G, GRA, K, P); Mossel River *L. Guthrie* (BOL); Hermanus *Martin* 298 (KIR). BREDASDORP: Napier *Barker* 7253 (KIR). LADISMITH: Roodeberg *Lewis* (CTM).

Specimens (*Barker* 7192 (KIR)) from Shaws Mountain, Caledon, are like this species but have a much branched inflorescence and flowers with the corolla blue-purple externally. They may represent the hybrid *P. brevilibus* $\times$ *fruticosus*.

6. *P. decurrens* Adamson sp. nov.

Caules decumbentes e basi solum ramosi. Folia numerosa secunda vel squarrosa saepissime falcata lanceolata acuta dentata decurrentia. Inflorescentia aphylla tenuis ramosa. Bractae minutae. Flores pedicellati. Calycis lobi acuti corolla multo breviores. Corolla campanulata, tubo lobis subaequilongo vel longiore.

Low-growing with several unbranched decumbent stems from a woody base. Leaves crowded, lanceolate, acute, 0.5–1 cm. long, 2–3 mm. wide, squarrose or secund, most often falcate, concave above, coarsely ciliate at the base, with 1 or 2 teeth on each margin, the base decurrent and ciliate. Inflorescence glabrous, leafless, 5–10 cm. long, branched. Flowers pedicellate. Bracts very small, ciliate at the base. Calyx lobes 2–3 rarely 4 mm. long, glabrous, less than half as long as the corolla. Corolla campanulate, 1–1.3 cm. long, white or tinged with blue, con-

colourous, the tube as long as or longer than the lobes. Fruit slender, glabrous, about 1—1.5 cm. long

Endemic to the Cedarberg range, usually among rocks at 3,000 ft. or higher.

The type is *Esterhuysen* 2787 in herb Bolus.

A distinctive species, in flowers like *P. brevilobus* but quite different in habit and leaf.

CLANWILLIAM: Middelberg Plateau *Esterhuysen* 2787 (BOL); Sneeuwberg *Esterhuysen* 13820 (BOL p.pt. K, KIR, PRE), 13823 (KIR).

7. *P. alpinus* (Bond) Adamson comb. nov.

Roella alpina Bond J. S. Af. Bot. 6. 61. 1940.

Stems woody at the base, much branched, the branches short and crowded and forming close or loose mats or cushions, or in shelter more elongated and erect. Leaves crowded at the tips of the branches, pale green, linear, 0.5—1.5 cm. long, rather rigid, often secund, concave above, coarsely ciliate near the base, the tip often incurved. Flowers sessile or on a brown glabrous peduncle up to 10 cm. long either unbranched or with few branches. Flowers few, 1—5. Bracts like the leaves but much smaller. Calyx lobes glabrous, flat, 2—3 mm. long, acute or sub-acute, distinctly connate at the base, much shorter than the corolla tube. Corolla deep blue, often purplish on fading, funnel-shaped, 0.5—1 cm. long, the acute lobes about as long as the tube. Ovary glabrous, purple-brown, 2—6 mm. long. Fruit 0.5—1 cm. long, narrowed to the base.

On the highest parts of the mountains in the south-west.

The type is *Compton* 8456 in herb Kirstenbosch.

A very distinctive species, somewhat variable in habit. The type specimen which was collected on an exposed summit, has very short branches and sessile flowers. Others which agree in all features of leaf and flower, range from mat plants with a short peduncle to erect ones with an elongated branched inflorescence. The differences are correlated with habitat conditions. Though originally described under *Roella* the fruit has longitudinal dehiscence.

CERES: Mts. above Laken Vlei *E. P. Phillips* 1979 (CTM). WORCESTER: Matroosberg *A. Bolus* 4416 (BOL); *Marloth* 2368 (PRE); *Stokoe* (CTM); Roodeberg *Compton* 8456 (BOL, KIR); *Esterhuysen* 1578 (BOL); Waaihoek Peak *Esterhuysen* 9893 (BOL, PRE); Slanghoek Peak *Esterhuysen* 1733 (BOL). TULBAGH: Winterhoek *Marloth* 1648 (BOL); *Esterhuysen* 19768 (BOL); Sneeuwgat *Esterhuysen* 19831 (BOL). CALEDON: Landtrostkop *Thorne* (CTM).

8. *P. crispus* L'Hérit. Sert. Ang. 2. 1788.

Campanula plicata Pers. Syn. 1. 193. 1805.

A stout annual up to 50 cm. high with an almost woody stem, the lower branches ascending, the upper divaricate. Stems thinly hairy. Leaves rather widely scattered, 1—4 cm. long, 2—4 mm. wide, flat, undulate, spreading or ascending, coarsely but usually thinly hairy. Leaves often deciduous at flowering time. Inflorescence glabrous or hairy, up to 25 cm. long, with divaricate branches and solitary terminal flowers. Bracts like the leaves but much smaller, often caducous. Calyx and ovary hairy or glabrous. Calyx lobes linear, 1.3—1.7 cm. long. Corolla pale blue or violet, sometimes pinkish, cup-shaped, 2—3 cm. long, the tube about a quarter the length of the acute lobes. Fruit 4—6 cm. long, glabrous or hairy.

Dry slopes or flats, mostly on sand, in the western and northern districts. Extends into the margins of the karroo.

The type is *Masson* in herb Brit. Mus.

Variable in size and the degree of hairiness. Easily recognized by the flat undulate leaves, divaricate inflorescence, large flowers, and the corolla divided to near the base.

VAN RHYNSDORP: Nardouw Kloof *Pearson* 5332 (K); Van Rhynsdorp *Esterhuysen* 1422 (PRE). CLANWILLIAM: Clanwilliam *Galpin* 10719 (PRE); Alpha *Esterhuysen* 7148 (BOL, PRE); Nieuwoudt Pass *Bond* 1325 (KIR); Klaver *Marloth* 12550 (PRE); Olifants River *Esterhuysen* 17849 (BOL), 1421 (BOL, KIR, PRE); *Mathews* (BOL, K); *Leipoldt* (BOL). VICTORIA WEST: Brakfontein *Thode* A2164 (K, PRE). PIKETBERG: Greys Pass *Compton* 18836 (KIR); *Leighton* 2378 (BOL, K, PRE); *Pillans* 2378 (K); *Piketberg Compton* 3632 (BOL); *Zandberg Pillans* 8588 (BOL); *Versvelds Pass Pillans* 7129 (BOL). MALMESBURY: Riebeck *Kasteel Salter* 1794 (K). CERES: Rosendalfontein *Pillans* 9586 (BOL). TULBAGH: Winterhoek *Ecklon & Zeyher* (CTM), 2397 (G S); Waterfall *Ecklon & Zeyher* 2397 (CTM, OXF). WORCESTER: Worcester *Ecklon & Zeyher* 9 (S), 2397 (CTM, S). CALEDON: Caledon *Esterhuysen* 4408 (BOL); Sondereinde River *Zeyher* (S). BATHURST: Glenfilling *Drège* 6330 (S), 6330b (BM, CGE, G, K, OXF, P), 6330c (P). WITHOUT LOCALITY: *Masson* (BM); *Verreaux* (P).

9. *P. Hildebrandtii* Vatke *Linnaea* 38 (N.F.4) 701. 1874.

Allied to *P. crispus* but usually glabrous and much more branched, with ascending branches. Leaves deciduous, widely scattered, flat, not undulate, the margins revolute, thickened and with a few teeth. Inflorescence with many branches, not divaricate. Bracts very narrow. Calyx lobes linear, 1—1.5 cm. long, connate at the base and slightly projecting. Corolla pale violet or blue, 2.5—3 m. long, widely campanulate, the

tube almost as long as the lobes. Fruit up to 8 cm. long, 3—4 mm. diam. gradually narrowed to the ends.

Dry open places in the northern regions. Sporadic in occurrence and apparently rare.

The type is *Meyer* 1869 in herb Vienna.

Very variable in size. Distinguished by the leaves, large flowers with the corolla divided half way, and the large fruits.

CALVINIA: Hantamsberg *Meyer* 1869. VAN RHYNSDORP: Van Rhyns Pass *Esterhuysen* 1422 (BOL). S.W.A: Aus *Dinter* 3595 (BM, BOL, PRE); Kurumanas *Dinter* 8296 (K); Lichtenstein *Dinter* 4478 (PRE, S).

Specimens in herb Kew have been labelled "*P. ausensis*".

Series 2. STRICTI.

Perennes lignosae. Folia alterna. Flores sessiles saepe subspicati vel subcapitati. Bracteae foliis latiores, integrae vel dentatae. Corolla plus minusve campanulata, alba vel purpurascens raro coerulea.

Diffuse sprawling or less often erect woody perennials. Leaves alternate. Flowers sessile, most often aggregated at the branch tips or in small heads. Bracts broader and generally larger than the leaves, entire or toothed. Corolla usually small, white, pink or violet, rarely blue.

KEY TO THE SPECIES.

1. Bracts entire: leaves entire.
 2. Sparsely or not branched: bracts firm: corolla cup-shaped, over 1 cm. long: ovary very narrow, stalk-like 10. *campanuloides*
 2. Much branched: bracts thin: corolla campanulate, less than 1 cm. long: ovary broad, prismatic 11. *Schlechteri*
1. Bracts toothed.
 3. Leaves entire: bracts with 1 lateral tooth on each side: corolla cup-shaped 10. *campanuloides*
var. *dentatus*
 3. Leaves toothed: bracts with two or more lateral teeth on each side: corolla campanulate.
 4. Slender, sprawling, much branched: leaves flat: bracts broad with pinnate teeth: corolla less than 1 cm. long.
 5. Flowers in heads: bracts hispid: calyx hairy 13. *hispidus*
 5. Flowers not in heads: bracts ciliate: calyx glabrous 12. *Rogersii*

4. Usually stout, erect: leaves revolute: bracts deeply toothed.
6. Bracts hairy, palmately lobed, the central lobe not longer than the others: calyx hairy: corolla less than 1 cm. long 17. *spinosus*
6. Bracts glabrous, pinnately lobed, the central lobe longer than the others: corolla over 1 cm. long.
7. Usually unbranched: leaves slightly revolute: bracts with the central lobe much longer than the lateral. . 15. *virgatus*
7. Branched: leaves strongly revolute: bracts with the terminal lobe slightly longer than the lateral.
8. Diffuse: flowers not in heads: bracts with the lateral lobes forwardly directed: corolla campanulate, the lobes as long as the tube 14. *Candolleanus*
8. Erect with short branches: flowers in heads: lobes of the bracts spreading: corolla tubular-campanulate, the lobes shorter than the tube 16. *cliffortioides*

10. ***P. campanuloides*** (L.f.) Sond. Fl. Cap. 3. 589. 1865.

Polemonium campanuloides L.f. Supp. Pl. 189. 1781. *Retzia campanuloides* Spreng. Syst. 1. 589. 1825. *P. strictus* A.DC. Monog. Camp. 169. 1830. *P. linariaefolius* A.DC. l.c. 169. *P. Ecklonii* A.DC. l.c. 168.

Usually glabrous. *Stems not or little branched, up to 75 cm. high, erect, ascending or sprawling, woody at the base. Leaves firm, linear or linear-lanceolate, 1—2 cm. long, 1—2.5 mm. wide, ascending, flat or revolute, entire, usually ciliate, crowded or distant. Inflorescence sometimes branched, the flowers usually crowded near the top more distant below. Bracts 0.5—1 cm. long, entire, more or less boat-shaped, ciliate at least at the base, from as long as to half as long as the ovary: bracteoles similar but smaller, ciliate all along. Flowers sessile but the ovary very narrow and stalk-like. Calyx lobes linear, 0.7—1 cm. long, often involute. Corolla white or tinged with pink or violet, cup- or saucer-shaped, 1—2 cm. long, as long as or longer than the calyx lobes, divided more than half way. Fruit about 2 cm. long.

Dry mountain slopes along the south coast. Rather common.

The type is in herb Thunberg, Uppsala.

Flowers transient, fading rapidly. Variable in size and habit. DeCandolle's two species, *P. strictus* and *P. lineariaefolius*, are not separable and are both certainly conspecific with Thunberg's type. *P. Ecklonii* only differs in being more slender, with shorter leaves and narrower bracts. It is a form found in the Caledon district but is connected by all stages of intermediate. *Marloth* 8355 (PRE) from Langeberg, Robertson, is an extreme form.

WORCESTER: Worcester *Andreae* 363 (PRE). TULBAGH: Waterfall *Pappe* (CTM, K, PRE). CALEDON: Bosjesveld Mts. *Stokoe* 7545 (BOL), sn (CTM, PRE); Caledon *Purcell* (CTM); *Verreaux* (G); Swartberg *Ecklon & Zeyher* 2396 (CTM); Genadendal *Bolus* 9906 (BOL); *Burchell* 7613, 8630 (K); *Ecklon & Zeyher* 81 (S), 2396 (S); *Gillett* 844 (BOL); *Schlechter* 10284 (BM, BOL, G, GRA, K, P, PRE); Greyton *Esterhuysen* 5074 (BOL, PRE); Sondereinde Mts. *Barker* 1031 (KIR); *Burchell* 7551, 7586 (K). ROBERTSON: Langeberg *Galpin* 9906 (K, PRE); *Marloth* 8355 (PRE); Sondereinde Mts. *Adamson* 4431, 4448. BREDASDORP: Bontebok Park *Compton* 21925 (KIR); *Johnson* 4 (KIR); The Poort *L. Bolus* (BOL, K); *Barker* 5262 (KIR); Rietfontein *Schlechter* 10595 (BM, BOL, G, GRA, K, P, S); Jantjesbosch *C. A. Smith* 4277 (PRE). SWELLENDAM: Potteberg *Adamson* 3908, 4316, 4318. RIVERSDALE: *Albertinia Muir* 1283, 1957 (J, PRE); *Esterhuysen* 19513 (BOL). MOSSEL BAY: Langeberg *Moran* (CTM); Mossel Bay *Salter* 371/17 (BM); Robinson Pass *Salter* 376/41 (BM). GEORGE: George *Guthrie* 4345 (KIR); *Paterson* 1212 (GRA); *Schlechter* 2400 (GRA); Outeniqua Mts. *Bolus* (BOL); *Bowie* (BM); *Schlechter* 2400 (BOL, K). KNYSNA: Plettenburg Bay *Bowie* (BM); Zitzikama *Drège* 6330 (S), 6330c (G, K, OXF). HUMANSDORP: Eerste River *Fourcade* 1179 (BOL, GRA, K); Slang River *Fourcade* 1873 (BOL); *Sparrman* 11 (S); Jeffreys Bay *Hutchinson* 1462 (K); Krakakama *Delessert* (G); *Burchell* 4529 (K); Maitland River *Burchell* 4598 (K); Gamtoos River *Bolus* 3051 (BOL); *Story* 2403 (GRA). UITENHAGE: Winterhoek *Ecklon & Zeyher* 2399 (CTM); *Zeyher* 101 (CTM); Witteklip *MacOwan* 1083 (GRA); Van Stadens River *MacOwan* 1083 (BM, P, PRE); Uitenhage *Ecklon* (S); *Ecklon & Zeyher* (S), 2398 (CGE, GRA, OXF, S); *Penther* 2757 (S); *Zeyher* 101 (BM, K); Swartkops River *Ecklon & Zeyher* 101 (S), 2398 (BOL, G, P, S); *Zeyher* 2398 (S), 3148 (CTM, K, P, PRE). PORT ELIZABETH: Port Elizabeth *de Castelnau* 334 (P); *Forbes* (K); *Prior* (K); *Rogers* 27638 (K); "W.J." (CGE); Baakens River *Galpin* 9920 (K, PRE); Sea View *F. R. Long* 286 (K); Parsons Vlei *F. R. Long* 535 (K), 541 (K, PRE); Redhouse *Paterson* 485 (GRA, K); Thescomb *Paterson* 485 (BOL); Thornhill *Story* 2403 (PRE). ALEXANDRIA: Alexandria *Galpin* sn (BOL), 10836 (K); *Burt-Davy* 12111 (PRE). ALBANY:

Sandflats *Rogers* 193 (GRA), 3259 (GRA); Grahamstown *Hafstrom & Acock* 1502 (PRE); *Prior* (K); *Wall* (S); Bushmans River *Compton* 19350 (KIR); *Leighton* 2612 (BOL, PRE); Seven Fountains *Leighton* 2833 (BOL); Hofmanns Bush *Britten* (GRA); Assegai River *Compton* 19057 (KIR). BATHURST: Port Alfred *Barker* 2177 (KIR); Kowie *Ryder* 24 (K); *Tyson* (GRA, PRE, S.); *MacOwan* 922 (GRA). SOMERSET: Somerset East *Bowker* (K). EAST LONDON: Gonubi Springs *Compton* 13141 (KIR); *Rattray* 1382 (BOL); Kidds Beach *Barker* 1288 (KIR); "Caffirland" *Gill* (K). WITHOUT LOCALITY: *Burman* (G); *Ecklon & Zeyher* (CGE); "V.H." (S); "Hort. Kew" (CGE, K); *Maire* (P); *Pappe* (K); *Verreaux* (G, P); *Zeyher* 203 (P), sn (K).

A specimen from Naukloof Mts., S.W.A. (*Pearson* 9060 (K)) may belong to this species. It differs in having a stout woody base with many slender branches, very small leaves, and almost flat bracts. The material is insufficient for complete determination.

Var. *dentatus* Adamson var. nov.

A typo differt caulibus robustioribus, ramosis; foliis revolutis; bracteis paucidentatis ovario brevioribus.

More woody and more branched than the common form. Leaves revolute. Bracts broader, less ciliate, and usually with a single lateral tooth on each side. Ovary longer than the bracts.

Rare in the Caledon district.

The type is *Gillett* 726 in herb Bolus.

CALEDON: Elandskloof Pass *Gillett* 726 (BOL); Genadendal *Schlechter* 10284 (K). WITHOUT LOCALITY: "Hort. Kew" (K).

11. *P. Schlechteri* Adamson sp. nov.

Suffrutex ramosissima ramis ascendentibus. Folia glabra lineari-lanceolata integra marginibus subrevolutis. Flores parvi ad apicem ramorum aggregati. Bracteae integrae tenerae subciliatae ovario aequilongae. Calycis lobi plani, corolla multo breviores. Corolla campanulata, tubo lobis aequilongo. Fructus brevis late cylindricus bracteis paulo longior.

A small erect much branched shrublet up to 40 cm. high, the branches ascending. Stems glabrescent above, hairy below. Leaves scattered, linear-lanceolate, 0.6—1.5 cm. long, 2—3 mm. wide, entire, glabrous, rather thin, slightly revolute when old. Flowers crowded at the tips of the branches, not in heads. Bracts entire, rather thin, 5—6 mm. long, 3—4 mm. wide, acute, very shortly ciliate, as long as the ovary. Calyx lobes flat, acute, 3—4 mm. long, 1.5—2 mm. wide, glabrous, much shorter than the corolla. Corolla campanulate, 0.5—0.8 cm. long, white

or tinged with blue or mauve, the lobes about as long as the tube. Ovary glabrous. Fruit cylindrical-prismatic, 7—8 mm. long, 2 mm. diam., slightly longer than the bracts.

Sandy soils in the extreme south. Apparently rare.

The type is *Schlechter* 7670 in herb Bolus.

A distinctive species that has been confused with *P. campanuloides* but quite different in habit, calyx, corolla and fruit. Fourcade (Trans. R. Soc. S. Af. 21. 83. 1932) quotes the plant under *P. Rogersii* but it differs markedly in habit, leaf-shape, bracts and fruit.

BREDASDORP: Elim *Schlechter* 7670 (BM, BOL, G, K). CALEDON: Babelons Tower *Esterhuysen* 4993 (BOL, GRA, KIR). PAARL: Wemmershoek *Andreae* 810 (PRE).

12. *P. Rogersii* Fourcade Trans. Roy. Soc. S. Afr. 21. 83. 1932.

A slender diffuse shrublet. Stems woody, shortly hairy, with lax branching. Leaves scattered, often distant, rather soft, linear-lanceolate or linear-oblong, 0.5—2 cm. long, 2—4 mm. wide, flat or very slightly revolute, the margins with distant acute teeth, ciliate at the base, usually with a few stout hairs on the midrib below. Axillary tufts of small leaves sometimes present. Flowers aggregated at the tops of the branches but scarcely in heads. Bracts broad at the base, glabrous, ciliate, 5—7 mm. long, the margins with deep narrow spreading pinnate lobes, the terminal point longer than the lateral. Ovary shorter than the bracts, 5—6 mm. long. Calyx lobes flat, acute, 3 mm. long. Corolla white, 0.5—0.8 cm. long, rather narrowly campanulate, the lobes less than half as long as the tube. Fruit brown, 0.7—1 cm. long, fusiform and distinctly narrowed at the ends.

Bushy mountain slopes in the central south coast mountains.

The type is *Fourcade* 3254 in herb Bolus.

Readily distinguished by the habit and bracts. At the fruiting stage the flowers may appear as if in heads.

GEORGE: Montagu Pass *Esterhuysen* 10855 (BOL); *Fourcade* 3254 (BOL, K), 5535 (KIR); George *Bolus* 8662 (K), 8663 (BOL, K); *Rogers* 16199 (J, K), sn (BOL); *L. E. Taylor* 1634 (PRE); *Paterson* 1253 (GRA); Postberg *Burchell* 5960 (K); Cradockberg *Compton* 14388, 14391 (KIR).

13. *P. hispidus* Adamson sp. nov.

• *P. Rogersii* affinis sed differt caulibus et foliis et floribus hispidis; foliis latioribus dentatis; floribus in capitulis terminalibus aggregatis; et corolla minore.

A sprawling hispid shrublet with woody branching stems up to 60 cm. long. Leaves scattered, dark green, ovate, acute, 4—7 mm. long, 2—

4 mm. wide, more or less revolute, densely hispid below thinly above, the margins with 2—3 distant acute teeth. Flowers 3—5 in terminal heads 1 cm. long and 0·8 cm. diam. Bracts coarsely hispid, 7—9 mm. long, deeply pinnately toothed or lobed, the lateral teeth spreading, the terminal not or very slightly longer. Calyx and ovary hispid. Calyx lobes flat, lanceolate, acuminate, 4 mm. long. Corolla white, 5—8 mm. long, narrowly campanulate or tubular, the lobes as long as the tube. Ovary shorter than the bracts. Fruit fusiform-prismatic, sulcate, 0·5 cm. long.

Rocks or stony slopes on the Outeniqua and adjacent mountains at 2,000—3,000 ft.

The type is *Adamson* 4351 in herb Bolus.

A distinctive species allied to but quite different from *P. Rogersii*.

MOSSEL BAY: Robinson Pass *Adamson* 4349, 4351; *Laughton* 132 (BOL); *Salter* 376/42 (BM), 3252 (BM, BOL); Cloetes Pass *Zinn* (CTM).

Specimens in herb BM have been labelled "*P. fasciculatus*".

14. **P. Candolleanus** Cham. *Linnaea* 8. 197. 1833.

An erect branching shrublet up to 50 cm. high. Stems woody, very shortly hairy, the branches ascending. Leaves usually crowded, spreading, rigid, linear-lanceolate, acute, 1—2 cm. long, 2—3 mm. wide, revolute, entire or commonly with distant teeth. Flowers loosely spicate, not in heads, the flower region not over 5 cm. long. Bracts glabrous, broad and clasping at the base, 7—9 mm. long, with a long acuminate point and 2—3 narrow forwardly directed teeth on each side: bracteoles pinnately lobed. Calyx lobes 3—4 mm. long, glabrous, acute. Corolla widely campanulate, 1—1·25 cm. long, pale violet or white, the lobes as long as the tube. Ovary shortly hairy, shorter than the bracts. Fruit about 1 cm. long.

Lower slopes and flats in the central south coast region.

The type is *Mundt* in herb Berlin.

Distinguished by the rigid entire leaves, spicate flowers, and the toothed bracts. The flowers are short-lived.

SWELLENDAM: Swellendam *Ecklon & Zeyher* 2401 (CTM, S). OUDTSHOORN: Meirings Poort *Thorne* (CTM). RIVERSDALE: Albertinia *Muir* 1957 (BOL), sn (BOL). MOSSEL BAY: Reutersbosch *Mundt* (K). GEORGE: Gt. Brak River *Fourcade* 3852 (BOL, K); Wit Els River *Fourcade* 6371 (BOL).

15. **P. virgatus** Fourcade Trans. Roy. Soc. S. Af. 21. 83. 1932.

An erect virgate usually glabrous shrublet. Stems solitary, rather stout, up to 60 cm. high. Leaves ascending, often appressed, scattered

above, more crowded below: upper leaves flat, the edges slightly revolute, 2—3 cm. long, 3—4 mm. wide, acute, with 1—2 pairs of sharp lateral teeth: lower leaves smaller. Inflorescence 4—10 cm. long, the flowers mostly crowded near the tip but some more distant below. Bracts leaf-like but broader at the base, 7—9 mm. wide, the tip acuminate up to 1 cm. long, the base with sharp lateral teeth 2—3 mm. long. Bracts as long as or longer than the ovary. Calyx lobes glabrous, lanceolate, acute, up to 1 cm. long. Corolla white or tinged with mauve, widely campanulate, slightly longer than the calyx lobes, divided about half way. Ovary 1—1.5 cm. long.

Apparently rare on mountain slopes in the Long Kloof area.

The type is *Fourcade* 4528 in herb Bolus.

In habit like a stout *P. campanuloides*. Closely related to *P. Candolleanus* and distinguished by the habit, the flat slightly revolute leaves and the bracts with a long terminal point.

GEORGE: Montagu Pass *Compton* 13167 (KIR). UNIONDALE: Avontuur *Fourcade* 4528 (BOL); De Hoek *Esterhuysen* 13625 (BOL, PRE); Mannetjeberg *Esterhuysen* 18473 (BOL). OUDTSHOORN: Kamanassie *Stokoe* (CTM).

16. *P. cliffortioides* Adamson sp. nov.

P. Candolleano affinis sed differt caulibus lignosis erectis ramis brevibus: foliis revolutis dentatis pungentibus; floribus dense aggregatis spicato-capitatis; bracteis palmato-pinnatilobatis, lobo terminale longo pungente; corolla tubuloso-campanulata calyce plus duplo longiore.

A stout erect shrub, 20 cm.—1 m. high, with many short branches. Stems woody, reddish brown, very shortly hairy, up to 8 mm. diam. Leaves glabrous, scattered but crowded on the branches, 1—1.5 cm. long, linear-lanceolate, revolute, pungent-acute, remotely toothed. Flowers in terminal heads. Bracts broad-based, 1—1.5 cm. long, deeply pinnately lobed, the terminal lobe long, pungent, the lateral lobes long near the top shorter at the base, the edges of the lobes revolute. The central lobe of the bract often has 1 or 2 small teeth at its base. Ovary shorter than the bracts. Calyx lobes glabrous, flat, 4—7 mm. long. Corolla tubular-campanulate, 1—2 cm. long, pale blue, the lobes shorter than the tube. Fruit about 1 cm. long, 3 mm. diam.

Very local on mountain slopes about the Gouritz River.

The type is *Adamson* 4336 in herb Bolus.

Allied to *P. Candolleanus* but differing in habit, densely aggregated flower heads, the larger and more toothed bracts, and the tubular corolla with short lobes. Specimens in collections have been labelled *P. strictus* var. *robustus*.

RIVERSDALE: Riversdale *Ferguson* (BOL). MOSSEL BAY: Cloetes Pass *Adamson* 4336, 4342; *Stokoe* (CTM); *Zinn* (CTM); Melkhoutessenbosch *Muir* 1371 (BOL, PRE).

17. **P. spinosus** *Adamson* sp. nov.

Suffrutex hirsuta ramosa. Folia ovata dentata pungentia. Flores bracteis circumdati. Bracteae hirsutae, foliis latiores, profunde palmatolobatae, lobis pungentibus, acumine lobis vix longiore. Calycis lobi hirsuti corolla breviores. Corolla alba tubulosa, tubo lobis duplo longiore. Ovarium hirsutum sulcatum bracteis brevius.

A stout erect woody plant covered all over with short and long white hairs. Stems up to 1 m. high, with many ascending branches. Leaves ovate, 0.5–1 cm. long, 3–5 mm. wide, flat or revolute when dry, pungent-acute, remotely toothed, subglabrous above, densely hairy below; older leaves reflexed. Flowers terminal, usually solitary, surrounded by about 5 bracts, the innermost pair smaller. Bracts hairy, pungent, 6–8 mm. long, 5–6 mm. wide, palmately lobed with 5–7 almost equal lobes all forwardly directed. Calyx lobes hairy, lanceolate, 4–5 mm. long, distinctly connate at the base. Corolla white, tubular, 0.8–1 cm. long, the lobes much shorter than the tube. Ovary obtusely sulcate, shorter than the bracts. Fruit sulcate, hairy, about 0.8 cm. long.

A local endemic on rocks at the summits of hills in the Potteberg.

The type is *Adamson* 3906 in herb Bolus.

SWELLENDAM: Potteberg *Adamson* 3899, 3900, 3906; *Barker* 5284 (KIR).

Series 3. NITIDI.

Perennes raro annuae, herbaceae vel sublignosae seapissime prostratae. Flores parvi solitarii axillares, bracteis foliis similibus sed saepe minoribus. Filamenta staminum basi paulo vel haud dilatata.

Perennials usually herbaceous, often prostrate. Flowers axillary, most often solitary, the bracts like the leaves but smaller. Flowers small, sessile or nearly so. Stamens with the base of the filaments ciliate but little or not dilated.

In several species the internodes in the flowering region may become much elongated giving the appearance of pedunculate flowers.

KEY TO THE SPECIES.

1. Leaves linear, either filiform or nearly so: flowers small, white: herbs.
2. Leaves alternate: flowers sessile or in small raceme-like groups 18. *sessilis*

- 2. Leaves opposite: flowers in a long leafless inflorescence with divaricate branches 20. *tenellus*
- 1. Leaves flat, linear-lanceolate to ovate: flowers mostly solitary.
 - 3. Leaves linear-lanceolate, less than 2 mm. wide: flowers axillary: stems woody 19. *tenerrimus*
 - 3. Leaves lanceolate, ovate or oblong, at least 2 mm. wide.
 - 4. Leaves alternate.
 - 5. Erect woody plants with divaricate spine-tipped branches: flowers sessile 25. *lycioides*
 - 5. Herbs, woody at the base only: branches not divaricate nor spinous.
 - 6. Erect annual: leaves over 2 cm. long: flowers pedicellate 26. *rhodesicus*
 - 6. Perennials, prostrate or sprawling: leaves less than 1 cm. long: flowers sessile or nearly so.
 - 7. Leaves glabrous, usually toothed: bracts leaf-like 21. *nitidus*
 - 7. Leaves hairy: bracts deeply toothed.
 - 8. Leaves ovate, cordate, toothed: calyx lobes glabrous 22. *cordifolius*
 - 8. Leaves lanceolate, not cordate, slightly revolute: calyx lobes hairy 21. *lasiophyllus*
 - 4. Leaves opposite at least in the lower parts, usually hairy 23. *debilis*

18. **P. sessilis** Eckl. ex A.DC Monog. Camp. 171. 1830.

P. acerosus Schinz Bull. Herb. Boiss. 2. 217. 1894. *Wahlenbergia filicaulis* Good J. Bot. 62. 48. 1924.

Stems wiry, usually procumbent, many from the root, up to 60 cm. long, much branched, very slender, reddish or brown. Young stems minutely hairy but soon glabrescent. Leaves alternate, linear, concave above and often involutely rolled, 1—2 cm. long, straight or curved, crowded or scattered, often secund, glabrous except for a few stout cilia at the base. Flowers small, solitary or in groups of 2 or 3, the lower sessile the upper pedicellate and often on almost leafless branches: pedicels 0.3—1.5 cm. long. Calyx glabrous, the lobes less than 2 mm. long. Corolla white, often yellowish or pale blue on fading, narrowly campanulate, 3—5 mm. long, the lobes shorter than the tube. Ovary fusiform, distinctly narrowed at the ends. Fruit 4—6 mm. long.

Humus soils from sea level to mountain tops in the extreme south-west.

The type is *Ecklon* (herb Dunant) in herb DC. Geneva.

Apparently annual. Variable in size, habit, and leaf arrangement. *P. acerosus* does not seem to be more than a form from exposed sites. Insect galls are common and cause a considerable swelling of either the flower bud or the ovary: *Wahlenbergia filicaulis* was based upon such a galled plant.

CAPE: Cape Flats *Bolus* 3289 (GRA, K); *Zeyher* 278 (S); Doornhoogte *Zeyher* 750 (S), 1080 (BOL, CTM, CGE, G, K, P, PRE, S); Cape Town *Marloth* 9483 (PRE); Table Mt. *Adamson* 1632; *Bolus* 7087 (BOL); *Compton* 8289 (KIR), 12540 (KIR), 16966 (KIR); *Ecklon* (G, S), 152 (S); *Esterhuysen* 7843 (BOL), 11407 (BOL), 11495 (KIR, PRE), 12540 (BOL, PRE, KIR); *Harvey* (BM); *Stokoe* (CTM); Orange Kloof *Wolley-Dod* 2128 (BM, K); Groot Kop *Esterhuysen* 10033 (BOL); Rondebosch *Bolus* 3289 (BOL, PRE); Kenilworth *Flanagan* 2454 (P, PRE); *O. Kuntze* (K); *Schlechter* 224 (BM, CGE); *Wolley-Dod* 2611 (BOL); Wynberg *Schlechter* 23 (BM, CGE, GRA, P, PRE); *Wallich* 411 (BM), sn (BM); Bergvliet *Marloth* 8408 (PRE); Muizenberg *Bolus* 3289 (BM, BOL, CTM); *Bond* 1557 (KIR); *Salter* 292/23 (BM); Steenberg *Wolley-Dod* 276 (BM, BOL, K); Simonstown *Milne* 169 (K); Klaver Valley *Adamson* 819, 821 (PRE), 822; *Moss* 7503 (BM); *Wolley-Dod* 297 (BOL, K); Schusterskraal *Barker* 3995 (BOL, KIR); Boyskraal *Compton* 16665 (KIR); Bonteberg *Adamson* 1646; *Salter* 4284 (BM, BOL, K, PRE); Theefontein *Barker* 3959 (KIR); Smitswinkel *Compton* 16939 (KIR); *Galpin* 12733 (K, PRE); *Leighton* 924 (BOL, PRE); Patrys Vlei *Compton* 15498 (KIR); Dassiefontein *Adamson* 1648; Paulsberg *Adamson* 2460, 2466; Smiths Farm *Acock* 3820 (S); Cape Point *Lewis* (CTM). STELLENBOSCH: Flats *Burchell* 964 (K). CALEDON: Palmiet River *Adamson* 4183; *Esterhuysen* 12584 (BOL, KIR, PRE); *Stokoe* (CTM); Kleinmond *Wall* 520/33 (S); Onrust *Schlechter* 10385 (BOL, G, GRA, K, P, S, CTM); Hermanus *Galpin* 12849 (K, PRE); *Gillett* 630 (BOL, K). SWELLENDAM: Mts. *Burchell* 7367 (K). WITHOUT LOCALITY: *Ecklon & Zeyher* 17 (P, S); *Harvey* 219 (K), 247 (K), 267 (BM); *Masson* (BM); *Wallich* (CGE, G); *Sieber* 19 (P); *Zeyher* (S).

Var. **macrocarpus** *Adamson* var. nov.

A typo differt caulibus suberectis; floribus majoribus pedicellatis paniculatis; fructibus duplo longioribus.

Larger than the usual form and almost or quite erect. Flowers in a terminal almost leafless panicle with minute bracts. Corolla 0.5—0.8 cm. long. Fruit 1—1.5 cm. long, distinctly pedicellate.

Restricted to sites near the coast in the Caledon Division.

The type is *Esterhuysen* 13716 in herb Bolus.

CALEDON: Rooiels *Esterhuysen* 13716 (BOL, KIR); Steenbras Mouth *Salter* 4219 (BOL), 4257 (BM, BOL); *Galpin* 12418 (K), 12718 (PRE).

19. ***P. tenerimus*** Buek in Eckl. & Zeyher Enum. 384. 1837.

P. Burchellii Vatke Linnaea 38. (N.F.4.) 701. 1874.

Slender, erect or sprawling. Stems woody at the base, with few or many ascending branches, the younger red or brown, minutely hairy. Leaves alternate, scattered, often closer towards the base, linear-lanceolate, 0.5—1.3 cm. long, 1—3 mm. wide, flat or slightly revolute, glabrous or with cilia at the base, entire or rarely with a few lateral teeth, the midrib very slightly projecting below. Flowers axillary, raceme-like, solitary or less often in groups of 2 or 3, sessile or with pedicels up to 1 cm. long. Bracts like the leaves but smaller, more ciliate and occasionally toothed: bracteoles 0.3—0.5 cm. long, just below the ovary. Calyx lobes glabrous, lanceolate, acute, 2—3 mm. long. Corolla 0.6—1 cm. long, pinkish or white, campanulate, the lobes as long as or slightly longer than the tube. Ovary 0.3—0.6 cm. long. Fruit narrowly fusiform, often curved, 0.6—1 cm. long, about 2 mm. diam.

Widely spread but not common on the mountains along the south-west and south coast, extending eastwards as far as Riversdale.

The type is *Ecklon & Zeyher* 2402 in herb Berlin.

Variable in size and habit: in shelter erect and little branched, in exposed places woody, decumbent and much branched. There seem no constant features by which *P. Burchellii* (type *Burchell* 7665 (K)) can be separated even as a variety.

PAARL: Wemmershoek *Marloth* (PRE). STELLENBOSCH: Jonkershoek Twins *Esterhuysen* 11485 (BOL). CALEDON: Paardeberg *Adamson* 4190, 4204; *Stokoe* 9110 (BOL); Onrust *Esterhuysen* 4927 (BOL); Hermanus *Gillett* 663 (BOL, K); Shaws Mt. *Adamson* 4446; *Hafstrom & Acock* 2009 (PRE); *Salter* 5155 (BM, BOL, K); Babylons Tower *Esterhuysen* 4992 (BOL, KIR); *Thorne* (CTM); Swartberg *A. Bolus* (BOL); *Ecklon & Zeyher* 2402 (CTM); *Schlechter* 9768 (BM, BOL, G. GRA, K, P, PRE, S); Genadendal *Burchell* 7665 (K, P); *Schlechter* 10319 (BM, BOL, G. GRA, K, P, PRE, S); Sondereinde River *Ecklon & Zeyher* 2402 (CTM, S). BREDASDORP: Elandskloof Mts. *Schlechter* 9776 (K, p. pte). SWELLENDAM: Tradouw Pass *Adamson* 3888. RIVERSDALE: Garcias Pass *Adamson* 4366. PRINCE ALBERT: Swartberg *Pocock* S116 (PRE).

20. ***P. tenellus*** Oliver Hook. Ic. t. 1460. 1884.

A very slender glabrous sprawling plant. Stems quite herbaceous, very thin, 10—50 cm. long, much branched, often forming tangled masses.

Leaves opposite, linear, distant, the lower 3—5 mm. long, the upper smaller: internodes 1—5 cm. long. Flowers in the axils of the upper leaves, solitary, on slender peduncles 0.5—3 cm. long. Peduncles spreading or divaricate. Flowering region up to 35 cm. long. Calyx lobes linear, glabrous, 2—3 mm. long, shortly connate at the base. Corolla white, campanulate, 5—6 mm. long, the lobes slightly shorter than the tube. Ovary 4 mm. long. Fruit 0.5—1.5 cm. long, often spirally coiled after dehiscence.

Damp sheltered places on the higher mountains in the Worcester region.

The type is *Rehmann* 2477 in herb Kew.

Quite unlike any other species in habit.

WORCESTER: Hex River Mts. *Rehmann* 2477 (BM, BOL, G, K), sn (BM, K); Milner Peak *Esterhuysen* 14856 (BOL); Audensberg *Esterhuysen* 16674 (BOL); Prospect Peak *Esterhuysen* 15935 (BOL); Fonteintjesberg *Esterhuysen* 16684, 19994 (BOL).

A single specimen (Bolus 8574 (K)) collected at Fairfield, Bredasdorp, is somewhat like this species but differs in having alternate leaves, shorter and wider calyx lobes, and a shortly hairy ovary. The specimen is labelled "*P. divaricatus*" but the material is insufficient for determination.

21. ***P. nitidus*** L'Hérit. Sert. Ang. 2. t.3. 1788.

P. Hookeri Sweet Hort. Bot. ed. 3. 419. 1839. *Campanula Prismatocarpus* Ait. Hort. Kew. 1. 224. 1789.

Low growing. Stems woody at the base, procumbent, branched, up to 35 cm. long, the younger densely leafy. Leaves alternate or subopposite, oblong or oblong-lanceolate, 0.7—2.2 cm. long, 2.5—4 mm. wide, firm, shining, glabrous, remotely serrate, the teeth obtuse but with very short hair points. Flowers sessile, axillary, in groups of 2—5, less often solitary. Bracts like the leaves but smaller. Calyx glabrous, the lobes acute, lanceolate, 3—4 mm. long. Corolla 0.8—1.5 cm. long, pale blue, the lobes separate, about as long as the tube. Filaments with a broadened truncate base, densely ciliate. Style hairy. Ovary 1—1.5 cm. long, longer than the subtending leaves. Fruit 1.5—2.5 cm. long, very narrow.

Rock crevices on the mountains of the Cape Peninsula.

The type is *Masson* in herb Brit. Mus.

CAPE: Table Mt. *Adamson* 4453; *Anderssen* (S); *L. Bolus* (CT); *Burchell* 615 (G, K); *Ecklon* 155 (G, P), sn (G); *Ecklon & Zeyher* 16 (S), 2403 (CTM, S); *Harvey* (BM, K), 5020 (K); *Marloth* 3424 (PRE); *Wolley-Dod* 849 (K); *Schlechter* 505 (P); Blinkwater *Compton* 14441 (KIR); Window Gorge *Esterhuysen* 469 (KIR); Castle Rocks *Compton* 17913 (KIR); Cecilia Gorge *Cross* 2 (KIR); Devils Peak *Alexander* (BM); *Bolus*

3299 (BOL, CTM, GRA); *Esterhuysen* 10053 (BOL, KIR, PRE); *Gillett* 539 (K); *Guthrie* 1490 (CT); *O. Kuntze* (K); *Wolley-Dod* 676 (K); *Zeyher* 4902 (BOL, CTM); Noordhoek Mts. *Adamson* 2429 (CT); *Salter* 292, 22 (BM). 7991 (BOL); Constantiaberg *Compton* 8562 (KIR); *Wolley-Dod* 677 (BM, BOL). WITHOUT LOCALITY: *Alexander* (K); "*Hort. Kew*" (CGE); *Lehmann* (P); *Masson* (BM, G); *Wahlberg* (S).

Specimens of this species collected by *Bowie* (BM) have had the locality "Tradouwberg, Swellendam" added to the sheets in pencil. There is doubt about its accuracy.

Var. *ovatus* Adamson var. nov.

A typo differt caulibus tenuioribus; foliis ovatis vel ovato-rotundis, minus confertis; floribus saepissime solitariis, plus minusve pedicellatis; calycis lobi tubo corollae distincte brevioribus; corollae lobis tubo vix longioribus.

More slender and more laxly branched than the common form. Leaves less crowded, ovate or rotund-ovate, 4–6 mm. long, 2–5 mm. wide, rather thin, not shining. Flowers solitary or rarely in pairs, often with long internodes and very small bracts. Pedicels 1–5 mm. long. Calyx lobes 2 mm. long, glabrous, shorter than the corolla tube. Corolla campanulate, 0.6–1 cm. long, the lobes not spreading, about as long as the tube.

Under rocks near the summits of mountains from the Hottentots Holland northwards to the Breede River.

The type is *Adamson* 3635 in herb Bolus.

STELLENBOSCH: Emerald Dome *Esterhuysen* 14376 (BOL), 14378 (PRE); Jonkershoek *Rodin* 3255 (BOL). PAARL: Wellington Sneeuwkop *Adamson* 3635. WORCESTER: Wildepaardeberg *Stokoe* (CTM).

A specimen collected by *Guthrie* (sn KIR) labelled as "George" is this variety. One of the specimens on the sheet *Zeyher* 4902 (CTM) is this; the variety has not otherwise been recorded for the Cape Peninsula.

22. *P. lasiophyllus* Adamson sp. nov.

Caules debiles prostrati basi solum lignosi pilosiusculi. Folia alterna, saepissime secunda, ovato-lanceolata, acuta, superne sparse sed infra dense hirsuta, marginibus revolutis remote serratis. Flores 1–3, terminales, sessiles. Bracteae foliis similes sed dentatae. Calycis lobi lanceolati, imbricati, hirsuti, tubo corollae aequilongi vel paulo longiores. Corolla late campanulata, lobis tubo subbrevioribus. Filamenta staminum basi dilatata subciliata. Stylus hirsutus, corollae aequilongus. Ovarium hirsutum.

Prostrate, herbaceous or slightly woody at the base. Stems up to

25 cm. long, thinly hairy, branching from the base and from near the top. Leaves alternate, ovate-lanceolate, 4—6 mm. long, 2—3 mm. wide, acute, thinly hairy above densely below, the margins revolute, remotely serrate. Bracts like the leaves but less revolute and with 1 or more large acute teeth near the base. Calyx lobes 3 mm. long, hairy, more or less imbricate, lanceolate, acute, as long as or slightly longer than the corolla tube. Corolla pale blue, 5—7 mm. long, widely campanulate, the lobes acute, slightly shorter than the tube. Filaments dilated at the base, ciliate at the top only. Style hairy, about as long as the corolla. Fruit hairy, 0.5—1 cm. long, distinctly narrowed at the ends.

Under bushes on the summits of mountains in the Langeberg between Swellendam and Riversdale.

The type is *Adamson* 3883 in herb Bolus.

Allied to *P. nitidus* but readily distinguished by the hairy revolute leaves, terminal flowers and toothed bracts.

SWELLENDAM: Lemoenshoek Peak *Adamson* 3877, 3883; Goede Hoop Peak *Esterhuysen* 14436 (BOL).

23. *P. cordifolius* Adamson sp. nov.

Caules hispidi decumbentes vel suberecti e basi ramosi. Folia laxa hispida, alterna, ovata, basi subcordata, serrato-dentata. Flores solitarii vel binati in axillis foliorum superiorum. Bracteae foliis similes sed minores et magis incisae etiam sublobatae: bracteolae subglabrae paulo dentatae vel subintegrae. Calycis lobi subacuti, ovato-lanceolati, glabri vel pilis perpaucis tecti. Corolla alba, campanulata, calyce multo longior, tubo lobis longiore. Ovarium bracteis aequilongum vel paulo longius.

Stems herbaceous or very slightly woody at the extreme base, purple, hispid, sprawling or less often erect, up to 60 cm. long, branched mostly from the base. Leaves scattered, alternate, thinly hispid, ovate, 0.5—1.3 cm. long, 0.4—0.8 cm. wide, sessile, more or less cordate at the base, serrato-dentate, acute. Flowers in the upper axils, sessile, solitary or in pairs. Bracts smaller than the leaves, less hispid, deeply toothed: bracteoles subglabrous, less toothed or almost entire, as long as or slightly shorter than the ovary. Calyx lobes ovate-lanceolate, subacute, slightly imbricate, about 3 mm. long, glabrous or with very few white hairs. Corolla white, campanulate, about 8 mm. long, the lobes half as long as the tube. Style almost as long as the corolla. Ovary thinly hispid, about 5 mm. long. Fruit up to 1 cm. long.

Swamps by streams on the mountains near the mouth of the Palmiet River.

The type is *Esterhuysen* 13674 in herb Bolus.

Appears to flower only after fires.

CALEDON. Bettys Bay *Esterhuysen* 13674 (BOL, KIR, PRE); Paardeberg *Adamson* 4173.

24. ***P. debilis*** Adamson Journ. S. Af. Bot. 12. 37. 1946.

A slender decumbent or prostrate perennial forming loose tangles. Stems very slender, hispid, 10—40 cm. long, much branched. Leaves opposite or the upper alternate, oblong, ovate or rotund, 4—7 mm. long, 3—4 mm. wide, flat, sessile or minutely petiolate, dark green above, paler below, glabrous or thinly hairy, the edges with 1—2 acute setiferous serrations. Flowers in the upper axils, solitary or in pairs. Bracts like the leaves or commonly much smaller and separated by long internodes. Calyx lobes acute, 2 mm. long. Corolla campanulate, white, pale blue or pinkish, 4—7 mm. long, the tube as long as or longer than the lobes. Filaments flattened at the base, not or very minutely ciliate. Style hairy. Ovary glabrous. Fruit 1—1.8 cm. long.

Among rocks on the uppermost parts of mountains in the south-west.

The type is *Bolus* 7305 in herb Bolus.

Rather variable in size and in leaf-shape. All the leaves may be opposite or only those at the base. The flowers usually appear as if pedunculate owing to the long internodes separating the uppermost very small leaves (bracts) but are sometimes quite sessile.

CERES: Olifants River Mts. *Esterhuysen* 13374 (BOL, KIR, K, PRE). TULBAGH: Gt. Winterhoek *Esterhuysen* 19793 (BOL). WORCESTER: Milner Peak *Esterhuysen* 14862 (BOL); Audensberg *Esterhuysen* 16672 (BOL); Waaihoek Peak *Esterhuysen* 15088 (BOL); Slanghoek Mts. *Wall* (S); Observation Peak; *Esterhuysen* 1712 (BOL); Upper Wellington Sneeuwkop *Adamson* 3606 (PRE); *Esterhuysen* 15031 (BOL). PAARL: Lower Wellington Sneeuwkop *Esterhuysen* (BOL); Haalhoek Spitzkop *Esterhuysen* 13536 (PRE), 13904 (BOL); Seven Sisters *Esterhuysen* 15307 (BOL). CALEDON: Genadendal Mts. *Bolus* 7305 (BOL, GRA, K); *Burchell* 7341 (K, P), 7735 (K, P); *Schlechter* 10298 (BM, BOL, G, GRA, K, P, PRE, S), 9882 (BOL, GRA). SWELLENDAM: Lemoenshoek Peak *Adamson* 3882.

Var. ***elongatus*** Adamson var. nov.

A typo differt caulibus robustioribus subrigidis; foliis majoribus inflorescentia elongata ramis subdivaricatis 2—4 floriferis; floribus majoribus.

A more robust plant than the ordinary form with subrigid prostrate stems up to 45 cm. long. Leaves mostly opposite, up to 1.2 cm. long and 0.5 cm. wide. Inflorescence elongated, up to 15 cm. long, with wide; spreading branches bearing 2—4 flowers. Flowers subsessile or shortly

pedicellate. Calyx lobes flat, acute, ovate-lanceolate, about 3 mm. long. Corolla 0.6—1 cm. long.

Mountain slopes at the head of Michells Pass.

The type is *Schlechter* 9775 in herb Bolus.

CERES: Michells Pass *Bolus* 8337 (BOL, PRE); *Schlechter* 9775 (BOL, GRA, K, PRE).

SPECIES OF UNCERTAIN AFFINITY.

The two following species are placed at the end of the Series *Nitidi* on account of the leaf-like bracts but they are not at all nearly related to any of the others in the series nor to one another.

25. *P. lycioides* Adamson sp. nov.

Caules lignosi ramis subdivaricatis subpungentibus. Folia alterna plana ovata acuta superne glabra infra subhispida marginibus revolutis. Flores axillares numerosi parvi. Corolla alba infundibuliformis lobis tubo longioribus. Discus bilobus. Fructus subfusiformis.

An erect shrubby plant 40 cm. high, with almost divaricate branches ending in soft spines. Young stems shortly hairy. Leaves crowded, decreasing in size from below upwards, ovate, flat, 4—6 mm. long, 2—3 mm. wide, acute, ciliate at the base, glabrous above, hispid at least on the midrib below, the margins slightly revolute. Flowers numerous, small, in the axils of leaves. Calyx lobes lanceolate, 2 mm. long, 1 mm. wide at the base, acute, glabrous or slightly hairy. Corolla white, 4—6 mm. long, funnel-shaped, the lobes longer than the tube. Disc 2-lobed. Ovary minutely downy. Fruit about 0.5 cm. long, sulcate, narrowed at both ends.

In karroo-like vegetation on foothills near Worcester.

The type is *Esterhuysen* 1909 in herb Bolus.

WORCESTER: Btn. Worcester and Villiersdorp *Esterhuysen* 1909 (BOL); Hammans Hof *Compton* 8850 (KIR).

A single specimen collected by Stokoe in the Pakhuis Pass (CTM 573487) is like this species but differs in being shortly hairy all over; in having the lateral branches not spinous; the scattered acute leaves strongly revolute; the flowers in the axils of bracts much shorter than the ovary; and a prismatic obtusely angled fruit not narrowed at the ends. It is probably an undescribed species but the material is without flowers and unsuitable for diagnosis.

26. *P. rhodesicus* Adamson sp. nov.

Herba annua ramosa. Folia alterna plana oblonga vel oblanceolata paucidentata. Flores axillares pedicellati. Calycis lobi subulati ciliati,

tubo corollae leviter breviores. Corolla late campanulata alba lobis tubo longioribus.

An annual herb, 40—60 cm. high, with the habit of *Lobelia Erinus*. Leaves scattered, glabrous, oblong or oblanceolate, 2—4 cm. long, 3—8 mm. wide, with very occasional teeth on the margins. Flowers axillary, on pedicels 1—2 cm. long. Calyx lobes linear, subulate, 3 mm. long, ciliate with the hairs directed inwards, sometimes slightly toothed at the base. Corolla 0.5—1 cm. long, white, funnel-shaped, the lobes overlapping, one and a half times as long as the tube, the tube slightly longer than the calyx lobes. Filaments flattened at the base, the flat part extended laterally and ciliate at the top. Disc large, hemispherical. Style much longer than the stamens. Fruit 1.5 cm. long, somewhat narrowed to the base. Seeds ovoid.

Damp places in the Zambesi valley.

The type is *Flanagan* 3162 in herb Bolus.

RHODESIA: Victoria Falls *Allen* 118 (K); *Flanagan* 3162 (BOL, PRE); *Rogers* 5617 (BOL); Barotseland *Borle* 12 (PRE), sn (KIR).

A single specimen (*H. Curson* 710 (PRE)) from Ngamiland is an allied species. It is much branched, with scattered undulate linear leaves. The flowers are axillary, with the corolla divided half way. The disc is flat. Fruit clavate, distinctly narrowed from the top to the base.

Sub-gen. 2. *AFROTACHELIUM* Adamson s. gen. nov.

Perennes diffusae lignosae. Folia linearia. Inflorescentia pedunculata, aphylla, saepe ramosa, floribus numerosis parvis. Calycis lobi connati, corolla multo breviores. Corolla hypocrateriformis, lobis parvis patentibus plus minusve inaequalibus. Filamenta staminum basi haud dilatata. Discus minutus, planus. Stylus corolla multo longior.

Diffuse shrublets in habit resembling Series *Fruticosi* of *Euprismatocarpus* but more rigid and with smaller flowers. Calyx lobes connate. Corolla with a narrow cylindrical tube and small spreading often unequal lobes. Style distinctly longer than the corolla. Filaments of the stamens not dilated at the base. Disc small, flat.

The type species of the subgenus is *P. diffusus* (L.f.) A.DC.

KEY TO THE SPECIES.

1. Bracts shorter than the ovary: ovary and calyx glabrous.
 2. Inflorescence much branched: peduncle leafless: fruit linear: leaves glabrous 27. *diffusus*
 2. Inflorescence not or little branched: flowers secund: peduncle with leaves: fruit fusiform: leaves hairy 28. *pauciflorus*

1. Bracts as long as or longer than the ovary: ovary hairy.
3. Leaves revolute, pungent: calyx hairy, the lobes linear 29. *pilosus*
3. Leaves flat, toothed: calyx glabrous: the lobes lanceolate, imbricate 30. *fastigiatus*

27. **P. diffusus** (L.f.) A.DC Monog. Camp. 164. 1830.

Trachelium diffusum L.f. Supp. Pl. 143. 1781. *Lobelia laricina* Spreng. f. Tent. Supp. 9. 1828. *P. laricina* Presl Prod. Mon. Lob. 52. 1836.

Diffuse, much branched, in loose or close bunches. Stems woody at the base, the younger hairy. Leaves crowded, spreading, linear, 0.5—1.5 cm. long, 1—3 mm. wide, flat or concave above, rolled when dry, glabrous except for short stout white cilia in the lower part. Inflorescence leafless, 5—40 cm. long, usually rigid, glabrous, branched, the branches divaricate or spreading, the ultimate cymose. Flowers many, crowded or not, in cymose groups of 3 but often with additional flowers in the axils of the bracteoles. Flowers pedicellate but often apparently sessile owing to the branching. Bracts 2—3 mm. long, subulate: bracteoles smaller, often not opposite, on the pedicel and commonly just below the flower. Calyx glabrous, cup-like, about 3 mm. long, the free lobes erect, shorter than or as long as, rarely longer than the tube. Corolla violet, blue-violet or occasionally white, the tube about 1 cm. long, the lobes 3 mm. Stamens as long as the corolla tube. Style one and a half times as long as the corolla. Ovary glabrous, 0.5—1 cm. long. Fruit linear, cylindrical, 1—2 cm. long.

Among rocks on the lower slopes of mountains in the western and northern districts, not extending eastwards. Rather common.

Variable in size and the form and extent of the inflorescence. Plants from exposed situations at high altitudes may be short and almost tufted; those from shaded places have little branched inflorescences. The inflorescence branches finally become hard and woody.

NAMAQUALAND: Leliefontein *Pearson* 6309 (BOL, CTM, K); Rietkloof Mts. *Pearson* 5720 (BOL, K). CLANWILLIAM: Pakhuis Pass *Esterhuysen* 14987 (BOL); *Leipoldt* 3711 (BOL); Kliphuis *Leipoldt* 3711 (PRE); Clanwilliam *Leipoldt* 4349 (KIR, PRE); Krakadouw *Adamson* 458, 459; Middelberg *Compton* 6233 (KIR); Cedarberg *Norman* 328 (BM); Suurvlei-berg *Esterhuysen* 2494 (BOL, KIR, PRE); Elands Kloof *Esterhuysen* 4442 (BOL, PRE); *Leipoldt* (BOL); Olifants River Mts. *Leipoldt* (BOL); Greys Pass *Drège* 6324 (G, P); *Theiler* 51 (PRE). PIKETBERG: Versvelds Pass *Zinn* (CTM). CERES: Cold Bokkeveld Mts. *Adamson* 3137; Roodeberg *Compton* 8474 (KIR); Ceres *Guthrie* 2176 (KIR); *Thode* A2257 (K,

PRE). TULBAGH: Gt. Winterhoek *Drège* (CTM), 6324 (BM, OXF, S), 6326 (BM, CGE, G, K, OXF, P, S); *Galpin* 12631 (PRE); *E. P. Phillips* 1795 (CTM); Kardouw *Zeyher* 1079 (BM, BOL, CTM, K, P, S), 1081 (CTM, P); Tulbagh *Rogers* 17327 (J); Tulbagh Kloof *Ecklon & Zeyher* (CTM), 2389 (G, OXF, P, S); *Ecklon* 994 (S); *Marloth* 5599 (PRE); *Pappe* (K); *Zeyher* 1021 (BOL, K, OXF); Waterfall *Bolus* 4059 (BOL); *Compton* 12439 (KIR); *Scott-Elliott* 221 (BM). WORCESTER: Hex River Mts. *Tyson* 799 (CTM, PRE); Waaihoek Peak *Wasserfall* 821 (KIR); Worcester *Zeyher* 1081 (CGE); Brand Vlei *Compton* 8633 (KIR); *Rehmann* 2408 (BM, K); Onklaarberg *Stokoe* 1096 (PRE); Du Toits Kloof *Adamson* 4461; *Drège* 6325 (BM, G, OXF, P, S); *B. Marloth* 9 (PRE); *Tyson* 925, 3053 (CTM); Bains Kloof *Acock* 2619 (S); *Hafstrom* (S); *Rogers* 29286 (J); *Wall* (S); Baviaans Kloof *Lewis* (PRE). PAARL: Wellington Sneeuwkop *B. Marloth* 46 (PRE); Bains Kloof *Adamson* 470, 3922; *Barker* 476 (KIR); *Bolus* 4059 (BM, BOL, K); *Compton* 8309 (KIR); *Esterhuysen* (PRE); *Garside* 443 (K); *Gillett* 791 (K); *Grant* 2257 (PRE); *Marloth* 12013 (PRE); *Rogers* 29286 (GRA); *Salter* 373 11 (BM); Berg River Hoek *Compton* 12986, 15648 (KIR); Franschoek Pass *Compton* 12949, 12970, 8515 (KIR); *Gillett* 740 (K); *Leighton* (CTM, GRA, PRE); *Rodin* 3079 (BOL); *Salter* 1924 (BM, K), 2979 (BM, K); Gt. Drakenstein *Rogers* 10517 (BOL, G, J, K). MALMESBURY: Riebeck Kasteel *Pillans* 6102 (BOL); *Salter* 2016 (BM, K). STELLENBOSCH: Banhoek *Bond* 817 (KIR); Jonkershoek *Adamson* 3925; *Esterhuysen* 11485 (BOL, PRE); *Rodin* 3271 (BOL); Stellenbosch Mt. *Garside* 1208 (K); *Galpin* 10618 (G, K, PRE); Hottentots Holland *Burchell* 8280 (K); *Ecklon & Zeyher* (CTM, S); Helderberg *Galpin* 12311 (K, PRE); *Salter* 4225 (BM, K, PRE); Sir Lowry Pass *Adamson* 529; *Bolus* 4161 (BOL); *Gillett* 680 (K); *MacOwan* 2955 (CTM, GRA); *Schlechter* 7283 (PRE); Gordons Bay *Marloth* 10002, 10102 (PRE). CALEDON: Sir Lowry Pass *Compton* N.B.G. 76 48 (KIR); *Schlechter* 1160 (GRA), 7283 (BM, G, GRA, K, P, PRE, S); *Wall* (S); Steenbras *MacOwan* 2955 (CTM); *Moss & Rogers* 1531 (BM), 1550 (J); *Rogers* 10517 (GRA); *C. A. Smith* 7283 (PRE); Kogel Bay *Compton* 18949 (KIR); Houwhoek *Guthrie* 3662 (BOL); *Hermanus Gilman* 1963 (G); *Paterson* 19094 (BOL); Genadendal *Bolus* 633 (BM, BOL, G, GRA, K, P, PRE, CTM); *Burchell* 7807 (K); Sondereinde Mts. *Marloth* 8150 (PRE); Bosjesveld Mts. *Stokoe* (CTM), 7165 (PRE). VILLIERSDORP: *Adamson* 4138; *Galpin* 12323 (K, PRE). WITHOUT LOCALITY: *Balston* (BM); *Boivin* (P); *Ecklon & Zeyher* (CGE); "1:11" (GRA); *Drège* (G); *Masson* (BM, G); *Montini* (S); *Roxburgh* (G); *Swartz* (S); *Thunberg* (S); *Verreaux* (G, P); *Wallich* (BM, CGE, G, K, S); *Wallich & Hartmann* (S); *Zeyher* (P), 377 (G), 397 (P).

28. *P. pauciflorus* Adamson sp. nov.

P. diffuso differt foliis minoribus pilosis; inflorescentia ex caule

gradatim emergente; floribus paucis secundo-racemosis; fructibus fusiformibus.

Smaller and less branched than *P. diffusus*. Stems and lower leaves densely covered with short hairs. Leaves linear, pilose, appressed, 3—4 mm. long, the upper glabrescent. Axillary fascicles usually present. Inflorescence unbranched, emerging gradually from the stem, the upper leaves on the peduncle smaller and more distant. Flowers pedicellate, 3—6 in a second raceme. Bracts 2 mm. long. Pedicels 4 mm. Calyx glabrous, 3 mm. long, the lobes linear, erect, twice as long as the tube. Corolla pale violet, the tube very slender, 7—8 mm. long, the lobes 3 mm., narrow, almost equal. Style twice as long as the corolla tube. Fruit 0.8—1 cm. long, distinctly narrowed at the ends.

Endemic to the Cedarberg. On rocks at 3,000—4,000 ft.

The type is *Esterhuysen* 13815 in herb Bolus.

CLANWILLIAM: Wolfberg (Cedarberg) *Esterhuysen* 13815 (BOL, K, PRE).

29. *P. pilosus* Adamson sp. nov.

P. diffuso similis sed differt caulibus pilosiusculis; foliis subpungentibus; floribus subracemosis; calycibus et ovarii dense pilosis; calycis lobis acuminatis basi tantum connatis; stylo corolla fere duplo longiore.

An almost prickly rather rigid diffuse shrublet. Stems hairy. Leaves rigid, linear, acicular, ciliate at the base, involute and subpungent, 1—2 cm. long, often with axillary fascicles. Inflorescence stout, up to 35 cm. long, hairy, either unbranched or with alternate short divaricate branches 2—3 cm. long. Flowers often crowded, apparently racemose, at the tips of the stem and branches, pedicellate. Pedicels 1—5 mm. long. Bracts subulate, 0.5—1 cm. long, as long as or longer than the ovary: bracteoles 1—2 mm. long, at the top of the pedicel. Ovary and calyx densely covered with very short hairs. Calyx lobes linear, acuminate, about 3 mm. long, connate for less than a third their length. Corolla white or pale violet, the tube 0.5—0.7 cm. long, the lobes short, obtuse, distinctly unequal. Style twice as long as the corolla. Fruit 0.7—1 cm. long, narrowly fusiform.

Rocky mountain slopes in the Cold Bokkeveld and adjacent ranges.

The type is Adamson 4107 in herb Bolus.

In the later stages the inflorescence hardens and the branches become almost spinous.

CERES: Cold Bokkeveld Mts. *Adamson* 1536, 1538 (PRE), 3138, 4106, 4107, 4108, 4111, 4113, 4117, 4118, 4127; Zandfontein *Barker* 4466 (KIR).

30. *P. fastigiatus* Presl ex A.DC. in DC. Prodr. 7. 442. 1839.

Like *P. diffusus* but stouter, more rigid and less branched. Stems

hairy, up to 50 cm. high. Leaves scattered, linear, 2—3 cm. long at the base, smaller above, glabrous, concave above, minutely keeled below, the edges with distant pairs of small teeth. Inflorescence stout, unbranched or with few short branches, the peduncles bare or a few scattered bracts like the leaves but smaller and entire. Flowers crowded in spike-like groups, on minute pedicels. Bracts 4—6 mm. long, ovate, clasping, cuspidate, glabrous or ciliate, entire or toothed, as long as the pedicel and ovary; bracteoles similar but smaller, at the base of the pedicel. Calyx glabrous, the lobes lanceolate, imbricate, united for a third their length. Corolla white or pale violet, the tube 0·5—0·7 cm. long, about one and a half times as long as the calyx lobes, the lobes very short, subequal. Style about twice as long as the corolla tube. Ovary shortly hairy. Fruit 0·5—0·7 cm. long.

Rare. Only known from the collections of Drège from Uienvallei in the Caledon-Bredasdorp area.

The type is Drège in herb DC, Geneva.

CALEDON. Uienvallei Drège (BM, CGE, G, K, OXF, P, S).

EXCLUDED SPECIES.

P. junceus Buek in E. & Z. Enum. 383. 1837. is *Lightfootia juncea* Sond. Fl. Cap. 3. 563. 1865.

P. junceus Schinz Mem. Herb. Boiss. 20. 35. 1900 *non* Buek is a doubtful species, in appearance like *P. campanuloides*. As it was described as having a trilocular ovary it probably does not belong to the genus It was collected on rocky slopes in Great Namaqualand, S.W.A.

The following species belong to the genus *Specularia*:—

P. confertus Moench. Meth. Pl. 496. 1794.

P. cordatus Reichb. f. Fl. Ger. Excurs. 858. 1832.

P. falcatus Ten. Prod. Fl. Nap. 16. 1823.

P. hirtus Ten. l.c.

P. hybridus L'Hérit. Sert. Ang. 3. 1788.

P. pentagonus L'Hérit. l.c.

P. perfoliatus Sweet Hort. Brit. 1. 251. 1827.

P. scaber Lowe Trans. Camb. Phil. Soc. 6. 10. 1838.

P. Speculum L'Hérit. Sert. Ang. 3. 1788.

Since the above was in the press the following has come to hand:—

P. implicatus Adamson sp. nov.

P. tenello affinis sed differt caulibus longioribus; inflorescentia perlonga; corolla saepius 4-mera, lobis tubo duplo longioribus; staminibus brevibus filamentis non dilatatis; fructibus clavatis non spiraliter tortis; seminibus laevibus.

Larger and less delicate than *P. tenellus*. Flowering region up to 50 cm. long, with internodes 2—5 cm. long. Peduncles opposite, divaricate, each with 2—3 rarely 1 flowers. Bracts like the leaves but smaller. Flowers pedicellate, with a pair of bracteoles at or above the middle, commonly 4-merous but some 5-merous. Calyx lobes 1 mm. long, acute, not obviously connate. Corolla white or tinged with pink or purple at the tip, campanulate, 5—6 mm. long, the acute lobes twice as long as the tube. Stamens with slender not dilated filaments. Style slightly thickened upwards. Ovary clavate, distinctly narrowed to the base. Fruit rather swollen, 5—6 mm. long, the segments not twisted. Seeds few, oblong, obtuse-ended, quite smooth.

In tangles on sheltered rocks on mountains in the Tulbagh area. The type is *Esterhuysen* 16918 in herb. Bolus.

TULBAGH: Gt. Winterhoek *Esterhuysen* 16918 (BOL).

ROELLA

L. Sp. Pl. 170. 1753.

Shrublets, less often herbs. Leaves small, simple, usually linear, crowded or scattered, very often with axillary fascicles of smaller leaves. Flowers terminal, solitary or in groups, most often surrounded by bracts (floral leaves). Flowers regular, bisexual. Stamens not epipetalous, the filaments dilated and usually ciliate at the base. Ovary inferior, 2-chambered: ovules numerous. Stigma 2-fid. Disc flat, concave or bulged upwards. Fruit dry, opening by a hole or pore at the top at the position of the base of the style.

Rather variable in habit but most commonly ericoid. In many species the majority of the axillary buds produce very short shoots with tufts of leaves, branches being confined to buds at the base or just below the flower heads. Stout white setose hairs are a common feature, sometimes accompanied by smaller hairs. On the leaves, bracts and calyx lobes these marginal setae are accompanied by and show transitions to narrow tooth-like projections.

The type species is *R. ciliata* L.

The species fall into a number of series characterized by features of habit, bracts and flowers.

KEY TO THE SERIES.

1. Flowers not surrounded by bracts: stems mostly herbaceous 5. MUSCOSAE
1. Flowers surrounded by bracts: stems woody.
 2. Bracts like the leaves but often more crowded. . . 2. PROSTRATAE
 2. Bracts unlike the leaves in size or form.

- | | |
|--|---------------|
| 3. Bracts many, not much widened at the base:
corolla usually over 1.5 cm. long | 1. CILIATAE |
| 3. Bracts few: corolla rarely over 1.5 cm. long. | |
| 4. Bracts not broad-based: flowers solitary | 2. PROSTRATAE |
| 4. Bracts broad-based and clasping: flowers
usually in heads. | |
| 5. Leaves linear, not decurrent | 3. SPICATAE |
| 5. Leaves ovate or lanceolate, decurrent | 4. SQUARROSAE |

Series 1. CILIATAE.

Flores solitarii vel raro binati ternative, bracteis numerosis circumdati. Bracteae foliis latiores, non amplexicaules. Calycis lobi magni, persistentes et tandem amplificentes. Corolla late campanulata, saepe 1.5 cm. longa.

Stems woody. Leaves linear, ciliate with stout white hairs or with narrow pinnate teeth, the midrib below slightly projecting. Flowers solitary or less often in groups of 2 or 3, not in definite heads. Bracts numerous, larger than the leaves but not broad-based or clasping. Calyx lobes large, usually toothed, persistent and enlarged at the fruiting stage. Corolla rather widely campanulate, usually over 1.5 cm. long.

Most commonly erect or suberect. Stems branched mostly from below the flowers. Several of the species have variants with small flowers. 4- or 6-lobed corollas occur occasionally. In many the leaves are soon deciduous, only the axillary tufts persisting. Hybridization between associated species appears to occur.

KEY TO THE SPECIES.

1. Bracts green, either ciliate or with narrow but not hair-like teeth.
2. Bracts and calyx lobes covered with short hairs on the back: corolla with dark spots between the lobes: ovary hairy 4. *maculata*
2. Bracts and calyx lobes glabrous on the back or with stout setose hairs only: corolla concolorous or with dark spots on the lobes or a continuous dark band.
3. Bracts narrow, edged with stout white setose hairs, not toothed or only the innermost with occasional teeth near the tip.
4. Robust: corolla 1.5 cm. long or more, with a dark band: bracts 1 cm. or more long: ovary glabrous 1. *ciliata*

- 4. Slender: corolla not over 1 cm. long, concolorous or rarely with spots: bracts 0.5 cm. long: ovary hairy 8. *Dunantii*
- 3. Bracts pinnately toothed.
 - 5. Bracts crowded, forming a distinct bulge below the flower: calyx lobes glabrous or with stout setose hairs 2. *incurva*
 - 5. Bracts less crowded, not forming a bulge below the flower: calyx lobes ciliate.
 - 6. Corolla blue, concolorous: calyx lobes narrow, acuminate: bracts rigid, with distant pinnate teeth 2. *incurva* var. *rigida*
 - 6. Corolla red or pink with blue spots on the lobes: calyx lobes with pinnate teeth near the tip only: bracts with long pinnate teeth 3. *rhodantha*
- 1. Bracts brown and dry or becoming so when the flower opens, pinnate with long hair-like teeth: ovary hairy.
 - 7. Corolla with a dark band at the base: bracts and calyx lobes covered with short hairs on the back: bracts not hair-pointed 5. *triflora*
 - 7. Corolla concolorous: bracts with long hair-like points.
 - 8. Calyx lobes much longer than the bracts, covered on the back with short hairs: bracts closely pinnate 6. *Dregeana*
 - 8. Calyx lobes not longer than the bracts, ciliate but otherwise glabrous: bracts with distant pinnate teeth 7. *psammophila*

1. ***R. ciliata*** L. sp. Pl. 170. 1753. *emend.* A.DC. Monog. Camp. 173. 1830.
R. ciliata var. *Linnaeana* Sond. Fl. Cap. 3. 591. 1865.

Stems hairy, woody, sprawling, ascending or erect, up to 50 cm. long. Branches often divaricate, mostly from below the flower heads. Leaves usually crowded, 0.5–1 cm. long, 2–4 mm. wide, flat, narrowed from the base to the tip, more or less rigid, erect or spreading, the edges with few or many stout white setose hairs. Flowers usually solitary. Bracts numerous, not forming a distinct bulge below the flower, flat, narrowed from base to tip, 0.5–1.5 cm. long, acute, closely edged with stout white setose cilia, occasionally with a few setose hairs on the back, other-

wise glabrous. Innermost bracts occasionally with a few narrow pinnate teeth near the tip. Calyx lobes oblong-lanceolate, acuminate, 3—6 mm. wide, much longer than the bracts, ciliate, often with stout hairs on the midrib but otherwise glabrous, the middle and upper parts with narrow lateral teeth. Calyx lobes at flowering time as long as or longer than the corolla tube. Corolla widely campanulate, 1.5—4.5 cm. long, most commonly 2—2.5, the lobes contiguous, rounded or slightly mucronate at the tip, about one and a half times as long as the tube. Corolla blue or blue-violet, occasionally white, with dark marks at the base of the lobes or more often a continuous dark band, the dark part often edged with white. Ovary glabrous. Fruit with a rigid rim round the central pore.

The type is in herb Linn.

While rather variable in habit and flower size, the species is readily distinguished by the bracts. As described the species agrees with the Linnaean type. The earlier collectors had a wider connotation, the restriction being first recognized by A. DeCandolle (l.c.).

The curious pinkish colour of the corolla depicted in the plate in Bot. Mag. (378. 1797) has not been observed in wild plants but is exactly reproduced when flowers are kept in a box, and frequently appears on drying.

Flats and lower mountain slopes, either on sand or among rocks in the extreme south-west. Common on the Cape Peninsula, less so inland.

Hybrids with *R. triflora* and *R. prostrata* have been observed (cf. under those species).

TULBAGH: Saron *Schlechter* (S); Waterfall *Pappe* (CTM). WORCESTER: Du Toits Kloof *Drège* (G). PAARL: Paarlberg *Drège* (S); Wellington A. L. Grant (K, PRE); J. B. Thomson (PRE); Franschhoek W. J. Louw 133 (KIR); Moss 7534 (BM, J); Wemmershoek Moss 24891 (J). STELLENBOSCH: Kraaifontein *Acock* 3962 (S); Kanonberg *Acock* 1255 (S); Jonkershoek *Adamson* 3926, 3927; *Garside* 1167 (BOL, K); Sir Lowry's Pass *Adamson* 4037, 4045, 4158; *Schlechter* 7282 (BOL, K). CAPE: Doornhoogte *Zeyher* 748 (S), 3417 (S); *Ecklon & Zeyher* 2406 (CTM, p. pte); N'dabeni *Adamson* 3315; *Salter* 8710 (BOL), 8710 (KIR); Cape Flats *Ecklon & Zeyher* 2405 (CTM); *Pappe* (CTM); *Zeyher* (CTM); Seekoe Vlei *Ecklon* 81 (G, K); Cape Town *Balston* (BM, p. pte); *Burchell* 96 (K); *de Castelnau* 370, 447 (P); *R. E. & Th. Fries* 3001 (S.); *Paterson* 92 (GRA); *von Ludwig* (PRE); Table Mt. *Bolus* 86 (BOL); *Brown* (BM); *H. M. Cameron* (J); *Debeaux* (P); *Ecklon* 64 (G), 694 (P, S); *Esterhuysen* 28393 (PRE); *Harvey* 11 (K); *O. Kuntze* (G, K); *Leotard* (P); *MacGillivray* 657 (K); *MacOwan* 86 (K, P); *Milne* 181 (K); *Moss* 7561 (BM, J); *M. M. Page* (CT); *Rogers* 16985 (J); *Ryder* 154 (K); *Schlechter* 10 (CGE, GRA, P); *Scott-Elliot* 95

(PRE); *Shantz* 60 (K); *Wall* (S); *Zeyher* (S); *Kloof Nek Moss* 9019 (BM, J); *Lions Head Adamson* 3939; *Wilms* 3390 (K); *Camps Bay Alexander* (K); *Barker* 2431 (KIR); *Marloth* 5933 (PRE); *Naude* 49 (K); *Bakoven Hafstrom* (S); *Llandudno Wall* 999/9 (S); *Hout Bay Drège* (G); *Devils Peak Bolus* 3323 (BOL); *Rehmann* 1045, 1046 (BM); *Tyson* 2343 (BM); *Wolley-Dod* 182 (BM, BOL, K); *Raapenberg Guthrie* 998 (CT); *Wilms* 3890 (G); *Rondebosch Adamson* 670, 4025; *Levyns* 3129 (CT); *MacOwan* 2366 (CTM); *Marloth* 405 (PRE); *Newlands Adamson* 4034; *Esterhuysen* 15191 (BOL, PRE); *Kenilworth O. Kuntze* (K); *Wynberg Wallich* (BM); *Wynberg Hill Burchell* 874 (K); *Salter* sn, 2038 (K); *Kirstenbosch Adamson* 3928, 4020; *Barker* 199 (KIR, PRE); *Esterhuysen* 48, 48A (KIR); *Henderson* 1404 (KIR); *Moss* 17465 (J); *Steenberg Burchell* 8532 (K); *Muizenberg Arbuthnot* (CT); *Penther* 2736 (S); *Rogers* 1069 (GRA); *Kalk Bay Moss* 5056 (BM, J); *Fish Hoek Galpin* 4308 (PRE); *Red Hill Adamson* 689; *Simonstown Jamieson* (OXF, p. pte); *Wright* (K, P); *Kommetjie Galpin* 4308 (GRA); *Buffels Bay Adamson* 686 (PRE); *Cape Point Godman* 856 (BM). CALEDON: *Swartberg Ecklon* 81 (S), 2405 (BM, BOL); *Ecklon & Zeyher* (CTM, S); *Zeyher* (S). WITHOUT LOCALITY: *Anderssen* (S); *Banks & Solander* (BM); *Boivin* (P); *Burman* (G); *Commerston* (G); *Cosson* (P); *Drège* (BM, CGE, CTM, G, K, OXF, P); *Delessert* (G, P); *Ecklon* 2445 (G, OXF); *Ecklon & Zeyher* "92:10" (GRA); *Elliot* 63, 113 (G); *Forster* (K); *Forsyth* (K); *Gaudichaud* (P); *Gay* (K); *Genevier* (CGE); *Hartmann* (S); *Harvey* 454 (K), sn (BM); *Lalande* (P); *Lehmann* (P); *Lesson* (P); *Niven* (S); *Pappe* (K); *Peters & Stewart* (BM); *Poiret* (P); *Reeves* (CGE); *Richard* (P); *Ryder* (K); *Sieber* 78 (P); *Sonnerat* (P); *Steudel* 2405 (P); *Thunberg* (S); *Vaillant* (P); *Verreaux* (G); *Wallich* (BM, CGE, G, K); *Wallich & Hartmann* (S); *Yorke* (K); *Zeyher* (CTM). CULTIVATED: *Henslow* (CGE); "Hort. Paris" (G).

A record from Algoa Bay (*Lawson* (OXF)) requires confirmation as to the locality.

2. *R. incurva* A.DC. Monog. Camp. 172. 1830.

R. ciliata var. *incurva* Sond. Fl. Cap. 3. 591. 1865.

Much like *R. ciliata* but more erect and with ascending branches. Stems hairy, up to 40 cm. high. Leaves fasciculate, soon drying and often falling off, rigid, spreading or erect, often incurved, ciliate at the base, often with 1—2 pairs of linear teeth near the tip. Flowers solitary or in groups of 2 or 3. Bracts usually forming a distinct bulge 0.5—2 cm. long below the flower, most often incurved, pinnately toothed with close or distant, rigid, straight or curved teeth. Bracts usually ciliate at the base, sometimes all along, either glabrous on the back or with coarse white hairs. Calyx lobes longer than the bracts, broadly lanceolate,

1—2 cm. long, 3—5 mm. wide, acute or acuminate, glabrous or with a few stout hairs on the back, edged with narrow pinnate teeth. Corolla campanulate, 1.5—2.5 cm. long, white or blue, the lobes rather narrow, acute, longer than the tube, often marked by a dark blue spot, the spots large or small, sometimes white-edged, sometimes wanting. Disc flat. Style hairy. Ovary glabrous. Calyx in fruit red-brown or purple.

Common and widespread on the mountains in the south-west.

The type is *Bowie* in Herb. B.M.

Readily distinguished from *R. ciliata* by the bracts, and the corolla with narrow acute lobes. Variable in habit, hairiness, bract shape and flower colour. Some of the extreme forms look distinct but are connected by all stages of intermediate. The bracts may be glabrous or hispid, short or elongated, with the teeth closely set or distant. The forms appear to be races and some to be geographically separate. The flower colour appears to vary independently of the bract features. While corollas with dark spots on the lobes are commonest there is a wide range in the size of the spots and quite concolorous corollas are frequent.

Presumed hybrids with *R. maculata*, *R. psammophila* and *R. rhodantha* have been observed.

TULBAGH: Tulbagh *Rogers* 17405 (G); Waterfall *Zeyher* (S). WORCESTER: Onkkaarberg *Marloth* 110 (PRE). PAARL: Franschhoek Pass *Adamson* 4081, 4084, 4091; *Compton* 8173 (KIR); *Galpin* 12293 (K, P, PRE); *Martin* 622 (KIR); *Pillans* 6750 (BOL, K); *Salter* 4175, 4176 (BM); Franschhoek *Thode* A2210 (K, PRE); Berg River *Zeyher* (S). CAPE: Cape Town *Balston* (BM, p. pte); Simonstown *Jamieson* (OXF, p. pte). STELLENBOSCH: Simonsberg *Ecklon* (S); Jonkershoek *Adamson* 3841, 4051, 4089; Hottentots Holland *Bowie* (BM); Lourensford *Esterhuysen* 3511 (PRE). CALEDON: Sir Lowry Pass *Adamson* 4145, 4146, 4147, 4148, 4149, 4150, 4151, 4152, 4153, 4154, 4155; *Ecklon & Zeyher* (S); *Zeyher* 695 (S); Steenbras *Adamson* 3859, 4032; *Salter* 5225 (BM, K), 5214A (BM, K); Steenbras Mouth *Adamson* 4030; *Salter* 5214 (BOL, GRA, K), 5219 (BOL, K); Koel Bay *Adamson* 4028; *Barker* 5279 (KIR); *Compton* 18956 (KIR); 20440 (KIR); *Leighton* 2463 (PRE); Hangklip *Adamson* 4412; *Pillans* 8195 (BOL, p. pte, K); Pringle Bay *Adamson* 4218; Palmiet River *Adamson* 3850, 3853, 3860, 4048, 4049, 4162A, 4163, 4168, 4169, 4170, 4177, 4179, 4182, 4186, 4206, 4207, 4211, 4212, 4213, 4219, 4458, 4459, 4460; *Barker* 1200 (KIR); *Esterhuysen* 12616 (BOL); Kleinmond *Compton* 12377 (KIR); Hermanus *Compton* 14257 (KIR); *Esterhuysen* 4228 (BOL); *Gillett* 625 (BOL); *Gilmore* 20749 (G); Mossel River *L. Guthrie* (PRE); *Potts* 5016 (CTM); Klein River *Adamson* 4128, 4129; Hemel-en-Aarde *Adamson* 4451; *Gillett* 561 (BOL); Shaws Mt. *Adamson* 4445; Grabouw *Britten* 3114 (GRA); Viljoens Pass *Adamson*

4143A, 4144; *Burchell* 7957 (K); *Gillett* 687, 688 (BOL, K); *Rodin* 3101 (BOL); *Salter* 2029 (BM, K); Houwhoek *Adamson* 4418, 4419, 4420; *Bowie* (BM); *Zeyher* 3149 (CTM, K, S); Bot River *Adamson* 4098, 4100, 4101, 4103, 4104; Caledon *Ecklon & Zeyher* 4314 (PRE, p. pte); Swartberg *Ecklon & Zeyher* 2405 (S); 2407 (CTM); *Pappe* (S); Genadendal *Drège* (G); Bosjesveld Mts. *Burchell* 7884 (K); *Stokoe* (CTM); Villiersdorp *Adamson* 4135, 4136, 4137, 4140, 4141, 4142, 4176, 4186; Aries Kraal *Barker* 3343 (KIR); *Compton* 16819 (KIR); *Leighton* 901 (BOL). BREDASDORP: Elandsbloof Mts. *Adamson* 4321; *Galpin* 12294 (K, PRE); Ratel River *Bolus* (BOL, p. pte); Grashoek *Wall* (S); Elim *Bolus* 8570 (K, p. pte); Bredasdorp *Galpin* 11302 (K, PRE); Zondagskloof *Compton* 10229 (KIR). ROBERTSON: Sondereinde Mts. *Adamson* 4301, 4307, 4317. WITHOUT LOCALITY: *Auge* (BM); *Bonpland* (P); *Burman* (G); *Burtt-Davy* 18532 (PRE), 18566 (PRE); *Drège* 7837 (S); *Ecklon* 286 (S); "Hort. Kew" (CGE); *Lalande* (P); *Lindley* (K); *Moss* 7433 (J); *Niven* (S); *Oldenburg* (S); *Peters & Stewart* (P); *Sparrman* (S); *Thunberg* (S); *Waldegrave* (BM); *Zeyher* 9 (K), 694 (S), 1000 (K).

Var. **rigida** *Adamson* var. nov.

A typo differt bracteis angustis rigidis distanter pinnato-dentatis; calycis lobis angustioribus acuminatis pinnato-dentatis, ciliatis; corolla concolore.

A rather rigid erect or sprawling plant. Flowers solitary. Bracts lax, rigid, 1 cm. or more long, narrow, with distant rigid pinnate teeth. Calyx lobes narrow, acuminate, completely ciliate. Corolla blue concolorous, the lobes shorter than the tube. Style slightly thickened below the stigma.

A local variety confined to the Potteberg Range.

The type is *Adamson* 3892 in herb. Bolus.

SWELLENDAM: Potteberg *Adamson* 3891, 3892, 3898, 3897, 3905; *Compton* 20411 (KIR).

3. **R. rhodantha** *Adamson* sp. nov.

Erecta vel diffusa, ramosa, caulibus hirsutis. Folia fasciculata ciliata apice pinnato-dentata saepissime dorso hispida. Flores solitarii. Bractee numerosae sublaevae planae rigide pinnato-dentatae. Calycis lobi lati pinnato-dentati ciliati apice intus hirsuti. Corolla rubra vel rosea, lobis coerulesco-maculatis, tubo lobis longiore vel aequilongo. Stamina filamenta basi dilatata et ciliata, apice plerumque retusa. Stylus hirsutus, sub stigmate lateraliter incrassatus. Ovarium glabrum.

A sprawling or suberect shrublet with wide-spreading branches. Stems hairy. Leaves rather rigid, squarrose or ascending, 2 mm. wide, ciliate,

with remote pinnate teeth near the tip, the midrib usually with stout hairs below. Flowers solitary. Bracts many, rather lax, rigid, flat, 2 mm. wide, edged with rigid, pinnate, often ascending teeth, the innermost often with stout hairs on the back. Calyx lobes longer than the bracts, connate at the base, flat, lanceolate, glabrous on the back, hairy inside the acuminate tip, with narrow pinnate teeth on the upper half, ciliate on the lower. Corolla red or pink, with blue spots on the lobes, 1.5—3 cm. long, the lobes subacute or apiculate, about as long as the tube. Filaments with the flattened base ciliate and usually retuse at the top. Style hairy, with two small lateral bulges below the stigma. Disc cup-like. Ovary glabrous.

A distinct species apparently confined to the Potteberg range. The form with red flowers is confined to a small area in the north-west of the range, the pink flowered plant is more widespread.

The type is *Adamson 3777* in herb. Bolus.

SWELLENDAM: Potteberg *Adamson 3777, 3893, 3894, 3903, 3917; David (KIR); Pillans 9441 (BOL)*.

***R. incurva* × *rhodantha*.**

Both the red and the pink flowered plants hybridize freely with *R. incurva* and its var. *rigida* where the species occur together, and a large series of intermediates occur in such situations. While the blue flower colour of *R. incurva* appears to be dominant, in other features the hybrid swarm covers a complete set of gradations from one species to the other. Some of the blue-flowered hybrids show a pink coloration on fading.

POTTEBERG: *Adamson 3904, 3912, 3915, 3916, 4309, 4313, 4315, 4317A*.

4. *R. maculata* Adamson sp. nov.

Fruticosa. Caules hirsuti ramosi. Folia fasciculata hirsuta dentata. Flores saepissime binati. Bractae hirsutae, acuminatae, apice pinnato-dentatae. Calycis lobi hirsuti bracteis longiores. Corolla infundibuliformis, lobis latis, rotundatis, tubo brevioribus vel aequilongis, tubo inter lobos maculato. Stylus sub stigmatibus incrassatus. Ovarium hirsutum.

Stems much branched, often forming close bunches or tufts, rarely over 25 cm. high. Leaves crowded, erect or ascending, hairy at least when young, flat at the base but subulate at the tip, 5—9 mm. long, usually with distant linear teeth, ciliate at the base, the midrib below broad and slightly prominent. Flowers on the main stem and on short branches, most commonly in pairs, less often solitary or in groups of 3 or 4. Bracts rather lax, usually hairy, lanceolate-acuminate, with slender

distant pinnate teeth on the upper part, ciliate at the base, the cilia reversed. Calyx lobes longer than the bracts, hairy, distinctly connate at the base, ovate-acuminate, ciliate, either entire or with remote linear teeth. Corolla funnel-shaped, 2—2.5, rarely 3 cm. long, violet or violet-blue, with large dark spots on the tube between the lobes. Corolla lobes as wide as long, rounded at the tip, as long as or shorter than the tube. Filaments very shortly ciliate on the widened base. Disc flat, glabrous. Style with a distinct lateral bulge below the stigma. Ovary hairy. Fruit 5—6 mm. long.

On sandy soils on the lower mountain slopes in the Palmiet River basin.

The type is *Adamson* 4160 in herb. Bolus.

CALEDON: Steenbras Siding *C. A. Smith* 2524 (K, PRE); Elgin *Adamson* 3920; Palmiet River *Adamson* 3851, 3857, 3921, 4160, 4161, 4178; *Esterhuysen* 12595 (BOL, PRE); *Gillett* 618 (BOL); *Levy's* 2695 (CT); *Pillans* 8206 (BOL); Hangklip *Pillans* 8195 (BOL, p. pte); Kleinmond *Salter* 5172 (BM, BOL, K). WITHOUT LOCALITY: *Moss* 7433bis (J).

***R. incurva* × *maculata*.**

Plants referable to this hybrid occur occasionally where the two species are associated and constitute a series of connecting forms. The majority of the hybrids have glabrous leaves; flowers in heads; bracts usually glabrous but in form showing all intermediate stages; calyx lobes ciliate and usually with stout hairs on the back; and corolla concolorous or with markings like *R. incurva* but funnel-shaped; and a more or less hairy ovary.

CALEDON: Palmiet River *Adamson* 3852, 3854, 3855, 3856, 3861, 4047, 4167, 4205, 4456, 4457.

5. *R. triflora* (Good) Adamson comb. nov.

R. ciliata var. *triflora* Good J. Bot. 62. 48. 1924. *R. Dregeana* auct. non A.DC. (e.g. Adamson in Adamson & Salter Fl. Cap. Pen 743. 1950). *R. ciliata* var. *Dregeana* Sond. Fl. Cap. 3. 591. 1865 (p. pte).

Usually erect. Stems hairy, with ascending branches usually in groups, either from the base or from near the top. Leaves ascending or incurved, short, 3—6 mm. long, flat, narrowed from the base to the tip, acute, often covered with very short hairs, usually with distant pinnate teeth, the midrib below more than three-quarters the width of the leaf. Axillary tufts of small leaves usually present. Flowers solitary or in groups of 2 or 3, the groups sometimes clustered. Bracts many, covered with very short hairs, 5—6 mm. long, with long narrow pinnate teeth in

the upper part and short cilia in the lower. Bracts green when the flower opens but soon becoming brown and dry. Calyx lobes covered with short hairs on the back, much longer than the bracts, 0.5—1 cm. long, broadly lanceolate or ovate-lanceolate, acute, with linear pinnate teeth. Corolla 1—1.5 cm. long, campanulate, pale blue with a dark band at the base, the lobes as long as or slightly longer than the tube. Style hairy. Disc cup-like. Ovary hairy. Calyx lobes at the fruiting stage enlarged and usually red or reddish.

Sandy soils in the southern part of the Cape Peninsula.

The type is *Moss* 7507 in herb. Brit. Mus.

Rather variable in size and habit. The corolla is slightly hairy externally. Double flowers occur occasionally. There has been confusion with this species. Sonder included it under his variety *Dregeana* of *R. ciliata* and his epithet was adopted when the plant was raised to specific rank. It is not, however, the real *R. Dregeana* A.DC. The epithet adopted is the earliest that is unambiguous, though not specially apt. The species hybridizes with *R. ciliata*.

CAPE: Table Mt. *Prior* (K); Groot Kop *Andreae* 1089 (PRE); Vlaggenberg *Adamson* 1763, 1764 (CTM); *Salter* 1905 (BM, BOL, K); *Schlechter* 299 (BM, P, PRE); Noordhoek Mts. *Adamson* 2433; *Salter* 2000 (BOL); Constantiaberg *Barker* 698 (KIR); *Compton* 20375 (KIR); Steenberg *C. B. Fair* (BOL); *L. Bolus* (PRE); Muizenberg *Bolus* 4714 (BOL, K); *Compton* 14287 (KIR); *Guthrie* (BOL), 1375 (CT); *Salter* 292 11 (BM, BOL); 292 11B (BM), 1883 (BOL); *Wolley-Dod* 2320 (BM, BOL, K); Kalk Bay Mts. *Adamson* 2398 (CT, PRE); *L. Bolus* (CT); Simonstown *MacGillivray* 658 (K); *Milne* 213 (K); Red Hill *Adamson* 2351 (BOL); *Galpin* 12448 (K, PRE); *L. Bolus* (CT); Klaver Valley *Moss* 7506 (BM, J), 7507 (BM, J); *Salter* 1944 (BOL, K); *Wall* 860 89 (S); Kommetje *Adamson* 695; Olifantsbosch *Levy* (CT); Theefontein *Compton* 21839 (KIR); Cirkels Vlei *Barker* 3955 (KIR); *Salter* 1919 (BM, K); Bonteberg *Adamson* 1653, 1654 (CT); Smitswinkel *E. P. Phillips* (PRE); Patrys Vlei *Salter* 5759 (CT); Paulsberg *Adamson* 2407 (CT); *Compton* 13002 (KIR); *Salter* 5733 (CT).

R. ciliata × *triflora*.

Plants presumed to be this cross are intermediate in the features of the bracts but more like *R. ciliata* in the corolla. Some of the hybrids look like *R. incurva* but have much narrower bracts with stout cilia at the base passing into narrow teeth at the top.

CAPE: Constantiaberg *Compton* 16944 (KIR); Red Hill *Adamson* 689A; Smitswinkel *Adamson* 741, 1597; Patrys Vlei *Salter* 292 22 (BM); Smiths Farm *Adamson* 701 (PRE).

6. **R. Dregeana** A.DC. in DC. Prodr. 7. 446. 1839.

R. leptosepala Sond. Fl. Cap. 3. 593. 1865.

Variable in habit, erect or sprawling, usually slender, with few or many ascending branches. Stems hairy. Leaves short, 3—5 mm. long, ascending or incurved, narrowed from the base to the tip, glabrous above, covered with short hairs below, with distant pinnate teeth, the midrib slightly projecting below. Axillary tufts of small leaves usually present. Flowers solitary or clustered. Bracts numerous, brown and dry, 1—1.5 cm. long, pinnate, narrowed to an acuminate hair-like point, the teeth bristle-like, ascending, 3—6 mm. long. Bracts finely ciliate, covered with very short hairs but glabrescent. Calyx lobes longer than the bracts, almost as long as the corolla, linear-lanceolate, narrowed to a hair-like point, with few or many bristle-like lateral teeth. Calyx covered with very short hairs, at least when young. Corolla pale blue or white, concolorous, 1—1.5 cm. long, the lobes about as long as the tube.

Mostly among rocks on the upper parts of the Worcester-Wellington mountains and on ranges extending eastwards. Rare below 3,000 ft.

The type is *Drège* (*R. ciliata* Thb.) in herb DC., Geneva.

Plants from high altitudes are small and often almost prostrate, those from lower levels or sheltered spots are larger and erect. Blue and white flowered forms occur in definite groups.

There is no doubt that *R. leptosepala* Sond. is this species; it was founded on *Drège* (*R. ciliata* Thb.) in herb. Sonder, Stockholm. DeCandolle's plant was collected on Paarlberg, Sonder's in Du Toit's Kloof, but the two are identical.

WORCESTER: Observation Peak *Esterhuysen* 8624 (BOL); Slanghoek Peak *Adamson* 3739; Du Toit's Kloof *Drège* (S). PAARL: Paarlberg *Drège* (BM, G, K, OXF, P); Wellington Sneeuwkop *Adamson* 3636; Bains Kloof *Adamson* 3569 (CT); *Bolus* 4060 (BOL); *Schlechter* 9179 (BM, BOL, G, K, P, PRE, S). CALEDON: Viljoens Pass *Burchell* 8144 (K); Swartberg *Zeyher* (S). ROBERTSON: Sondereinde Mts. *Adamson* 4441. WITHOUT LOCALITY: *Harvey* 12116 (BM).

Var. **nitida** Adamson nom. nov.

R. nitida Schlechter Bot. Jahrb. 24. 446. 1898.

Differs in the more slender erect habit; the very short leaves; the flowers usually in groups; the very short brown bracts, 4—5 mm. long, with straight spreading close teeth and acuminate but not hair-like tip; and the corolla much longer than the narrowly acuminate calyx lobes.

Mountain slopes between 2,000 and 3,000 ft. Rare and local.

The type is *Schlechter* 7483 in herb Berlin.

TULBAGH: Nr. Tulbagh *Schlechter* 7483 (BM, BOL, GRA, K); Baileys Peak *Stokoe* (CTM).

7. ***R. psammophila*** Schlechter Bot. Jahrb. 24. 446. 1898.

Small branched more or less erect shrublets rarely over 20 cm. high, the branches ascending. Stems hairy. Leaves 5—9 mm. long, very narrow, very acute, usually glabrous but ciliate at the base, usually with remote hair-like pinnate teeth in the upper part. Fascicles of small leaves usually present in the axils. Flowers solitary or in groups of 2 or 3. Bracts lax, brown, long and very narrow, 1—1.3 cm. long, closely ciliate, usually glabrous on the back, hair-pointed, with few remote lateral pinnate teeth. Calyx lobes not longer than the bracts, glabrescent, closely ciliate, acuminate, entire or with 1 or 2 pairs of pinnate teeth. Corolla white, concolorous, 1—1.3 cm. long, not or very little longer than the calyx, the lobes shorter than the tube. Ovary minutely hairy.

Mountain slopes near the coast.

The type is *Schlechter* 7436 in herb Berlin.

CALEDON: Houwhoek *Schlechter* 7436 (BM, BOL, CTM, K, P, PRE); Onrust *Esterhuysen* 5019 (KIR); Hermanus *Gillett* 571 (BOL); Paardeberg *Adamson* 4189, 4193, 4194, 4198; *Levyns* 8798 (CT); Kogelberg *Compton* 19408 (KIR); Genadendal *Schlechter* 9858 (GRA, p. pte). WITHOUT LOCALITY: *Waldegrave* (BM).

***R. incurva* × *psammophila*.**

Presumed hybrids have been found where the two species are associated. These are more like *R. incurva* in size and in the calyx, but the bracts are intermediate and show a range from one species to the other. The corolla is usually blue.

CALEDON: Paardeberg *Adamson* 4191, 4192, 4195, 4196, 4202.

The three species, *R. triflora*, *R. Dregeana* and *R. psammophila*, are closely related and in several of their features seem to form a series. As they occupy geographical areas which do not overlap they are treated as distinct species. They appear to be derivatives from a common ancestor which have diverged in isolation.

8. ***R. Dunantii*** A.DC. Monog. Camp. 175. 1830.

R. minor Buek in E. & Z. Enum. 385. 1837 (p. pte.). *R. gracilis* Buek. l.c. (p. pte.). *R. reticulata* var. *Dunantii* Sond. Fl. Cap. 3. 592. 1865 (p. pte.).

A small low-growing often prostrate plant with much branched stems, the branches erect or prostrate. Stems rarely over 25 cm. long, the younger hairy and with crowded squarrose leaves. Leaves 4—7 mm. long, linear,

flat, glabrous except for stout cilia near the base, soon deciduous but with axillary tufts of small leaves. Flowers aggregated or solitary. Bracts numerous, broader than the leaves, flat or obtusely bulged below, densely ciliate with stout white hairs. Calyx lobes 5—8 mm. long, flat, glabrous externally, densely hairy inside, ciliate at the base, often with 1 or 2 pairs of pinnate teeth near the tip. Corolla 0.7—1 cm. long, pale blue or white, usually concolorous but occasionally with small blue dots on the lobes, the lobes as long as or longer than the tube. Disc flat. Ovary hairy.

Sheltered places on flats or lower mountain slopes in the south-west. Rather rare.

The type is *Ecklon* (s.n. herb. Dunant) in herb. DC. Geneva.

Appears to flower most freely after fires. A species that has been much confused. Specimens have been referred to *R. ciliata*, *R. prostrata* and others. While similar in general form and in flower size to the Series *Prostratae*, the features of the bracts indicate affinity with Series *Ciliatae*. Both *R. minor* and *R. gracilis* are largely this species but include others also.

CAPE: Cape Town *Ecklon* (G). CALEDON: Sir Lowry Pass *Adamson* 4037, 4044; *Schlechter* 7282 (BM, GRA); Steenbras *Salter* 4217 (BM, K); Caledon Baths *MacOwan* 3013 (CTM); Swartberg *Liebenberg* (S); Caledon *Ecklon & Zeyher* 4 (S); Genadendal *Schlechter* 9858 (BM, BOL, G, GRA, P). STELLENBOSCH: *Marloth* 10009 (PRE). WITHOUT LOCALITY: *Ecklon & Zeyher* 2405 (G); *Zeyher* (S).

A specimen from "Salt River" (G) without collector's name is this species.

Series 2. PROSTRATAE.

Suffruticosae, saepissime prostratae. Folia linearia. Flores solitarii bracteis foliis similibus circumdati. Calycis lobi vix amplificentes. Corolla concolor, 1.5 cm. vel minus longa.

Shrublets most commonly prostrate. Stems hairy. Leaves linear, often without axillary fascicles. Flowers solitary. Bracts like the leaves but usually more crowded and often more toothed. Calyx lobes not or very little enlarged at the fruiting stage. Corolla concolorous, rarely over 1.5 cm. long.

KEY TO THE SPECIES.

1. Leaves flat, rigidly squarrose, without axillary fascicles: plants erect.
2. Lower leaves reflexed: calyx lobes acute, toothed, reflexed at the tip 13. *recurvata*

- 2. Leaves not reflexed: calyx lobes 3-fid at the tip,
not reflexed 14. *Goodiana*
- 1. Leaves linear or linear-subulate, not rigidly squarrose:
often with axillary fascicles.
 - 3. Calyx lobes broad, densely hispid with short hairs 12. *latiloba*
 - 3. Calyx lobes linear or linear-lanceolate, either gla-
brous or covered with very short hairs.
 - 4. Bracts squarrose or reflexed: calyx lobes densely
covered with very short hairs 11. *arenaria*
 - 4. Bracts not squarrose nor reflexed: calyx lobes
glabrous outside.
 - 5. Bracts and calyx lobes rigid, toothed:
leaves short, often reflexed 10. *bryoides*
 - 5. Bracts and calyx lobes not rigid: leaves at
least 0.5 cm. long, not reflexed 9. *prostrata*

9. *R. prostrata* E. Mey. ex A.DC. in DC. Prodr. 7. 447. 1839.

R. reticulata A.DC. Monog. Camp. 174. 1830 non L. (cf. J. S. Af. Bot. 12. 107. 1946). *R. Dunantii* auct. non A.DC. (e.g. Adamson in Adamson & Salter Fl. Cape Pen. 743. 1950). *R. gracilis* Buck in Eckl. & Zeyh. Enum. 385. 1837 (p. pte.).

Stems woody, prostrate, ascending or erect, branched. Leaves usually crowded, erect or squarrose, often secund. linear or linear-subulate, 0.5—1 cm. long, glabrous except for stout setose hairs near the base, the midrib broad and bulging below. Leaves persistent for more than one year, in the later stages with axillary fascicles of small leaves. Flowers solitary, often on short branches. Bracts like the leaves but usually more crowded, more strongly ciliate, and sometimes toothed. Calyx lobes flat, 5—8 mm. long, linear-lanceolate, entire or with lateral teeth, glabrous or hairy on the back, on the inside hairy all over, on the middle line only, or glabrous. Corolla white or pale blue, concolorous, 0.8—1.3 cm. long, often hairy outside, the lobes acute, spreading, longer than the tube, the calyx lobes longer than the tube. Anthers longer than the filaments. Style hairy, bulged below the stigma. Ovary hairy.

Flats and lowest slopes in the extreme south-west.

The type of *R. reticulata* A.DC. is *Vahl* in herb DC., Geneva; of *R. prostrata*, *Drège* in herb DC. The two are conspecific.

Variable in size and habit. Examination of a large number of specimens has shown that it is not possible to segregate the forms satisfactorily. Such features as the number of bracts, the relative length of calyx and corolla, the presence or absence of hairs on the calyx and corolla, are

variable without obvious correlation. Every gradation between extremes can be found.

MALMESBURY: Darling *Wallich* (BM, S); Hopefield *L. Bolus* (BOL). CAPE: Klipheuvel *Pappe* (CTM); Tygerberg *Drège* (S); Vygeskraal *Wolley-Dod* 687 (BM, K); Doornhoogte *Ecklon & Zeyher* 2406 (CTM, p. pte.); *Zeyher* 3417 (CTM, P); Koeberg *Pillans* (BOL, GRA); Cape Flats *Ecklon* (S), 283 (S); *Ecklon & Zeyher* (CTM); *MacOwan* 3059 (G); *Zeyher* (CTM); Cape Town *Bolus* (BOL), 3291 (GRA); *de Castelnau* 371 (P); *Rogers* (BM); Rondebosch *Adamson* 2769, 4455; *Bolus* 78 (BM, CTM, G, K, P), 2268 (K), 3291 (CTM); *Galpin* 12722 (K, PRE); *MacOwan* 78 (K); *Wolley-Dod* 2208 (K); Claremont *Schlechter* 302 (BM, CGE, P); Kenilworth *Adamson* 2774; Bergvliet *Marloth* 8410 (PRE); Retreat *Salter* 4274 (BOL); Princess Vlei *MacOwan* 78 (GRA), 3059 (CTM, GRA), 3291 (GRA); Tokai *Levyms* 5511 (CT); *Salter* 292/13 (K); Steenberg *Adamson* 3487; *Salter* 2956 (BOL); Muizenberg *Guthrie* 304 (CT); Fish Hoek *Moss* 18992 (BM); Kommetje *Adamson* 855; *Moss* 9837 (J); Slangkop *Hafstrom* (S); Witsands *Acock* 3956 (S); Camel Rock *Wall* 3138 (S); Theeberg *Levyms* (CT); Theefontein *Compton* 17921 (KIR); Schusters River *Adamson* 693; Cirkels Vlei *Galpin* 12299 (K, PRE); Smitswinkel *Adamson* 1726; Barker 3949 (KIR); *Compton* 16940 (KIR); *Moss* 5057 (BM, J); *Salter* 292/13 (BM); Platboom *Adamson* 522; Vasco da Gama Peak *Adamson* 2456. STELLENBOSCH: Bottelary *Acock* 2316 (S); Stellenbosch *Ecklon & Zeyher* 2409 (CTM); Simonsberg *Drège* (G.). PAAERL: Paarl *Hafstrom* (S). CALEDON: Steenbras River *Salter* 4217 (BOL); Villiersdorp *Schlechter* 9905 (G, K, P). WITHOUT LOCALITY: *Banks & Solander* (BM); *Bonpland* (P); *Masson* (BM); *Mund* (K); *Ryder* (K); *Vahl* (G); *Verreaux* (G); *Wallich* (K).

One specimen on the sheet *Ecklon & Zeyher* 2408 (CTM) is this species. The locality given, Gamtoos River, seems unlikely.

A single specimen from Huis River, Ladismith (*Lewis* (CTM)) is apparently an undescribed plant allied to *R. prostrata*. It differs in the depressed habit; scattered leaves; solitary flowers with few, 5—8 bracts which are flat, ciliate below and toothed above. The outer bracts may have axillary fascicles of leaves. The material is insufficient for diagnosis.

***R. ciliata* × *prostrata*.**

Plants presumed to be this hybrid have the general habit of *R. prostrata*, but have numerous often very narrow strongly ciliate bracts, and a rather large corolla often with a dark band at the base of the lobes.

CAPE: Kraaifontein *Salter* 6492 (K), sn (BOL); Melkbosch *Wasserfall* 776 (KIR).

10. ***R. bryoides*** Buek in *Ecklon & Zeyher Enum.* 386. 1837.

R. minor Buek l.c. (p. pte). *R. gracilis* Buek l.c. (p. pte).

A slender erect or sprawling woody shrublet, 25—40 cm. high, with ascending branches. Stems ridged, coarsely hairy. Leaves short, 3—6 mm. long, usually squarrose, the older reflexed, ciliate at the base, usually with axillary fascicles of smaller leaves. Flowers solitary, most often on short branches. Bracts leaf-like but rigid, more strongly ciliate, keeled below, toothed at the top. Calyx lobes rigid, flat, usually glabrous, 6—7 mm. long, acuminate, with a pair of almost pungent teeth near the tip. Corolla white or pale blue, 0·8—1 cm. long, the lobes about as long as the tube. Ovary hairy.

Dry bushy places on lower mountain slopes along the west coast. The type is *Zeyher* 1082 in herb Berlin.

Apparently rare. Allied to *R. prostrata* and much confused with it. Distinguished by the short leaves, the rigid toothed bracts and calyx lobes.

NAMAQUALAND: Kamiesberg *Zeyher* 1082 (BM, G, K, OXF, S); *Zeyher* (S). CAPE: Klipheuvel *Pappe* (CTM); *Zeyher* 1082 (CTM). CALEDON: Villiersdorp *Schlechter* 9905 (BM, GRA, PRE); Swartberg *Ecklon & Zeyher* 2407 (CTM, p. pte). WITHOUT LOCALITY: *Ecklon & Zeyher* 2406 (CTM, p. pte).

The unlocalized specimens, *Ecklon & Zeyher* 2407 (BOL) and 2411 (CTM), are probably this species but are without flowers.

11. *R. arenaria* Schlechter Bot. Jahrb. 27. 193. 1900.

Stems decumbent, prostrate or sprawling, up to 40 cm. long, branched mostly from the base. Leaves crowded, fasciculate, linear, ciliate, 0·5—1 cm. long, often with a few lateral teeth. Flowers solitary. Bracts crowded, squarrose or the lower reflexed, more rigid than the leaves and more toothed. Calyx densely covered with very short hairs, the lobes 0·6—1 cm. long, 2—2·5 mm. wide, flat, acute, with coarse pinnate teeth. Corolla white, 1—1·5 cm. long, the acute lobes longer than the tube, the tube shorter than the calyx. Ovary hairy.

Sandy soils on low hills and flats near the south coast.

The type is *Schlechter* 9691 in herb Berlin.

Very close to *R. bryoides* and possibly not really distinct. It differs in the larger leaves; squarrose or reflexed bracts; hairy calyx, and more deeply lobed corolla. As the two have distinct habitats and are geographically separate, it is convenient to keep them apart.

CALEDON: Danger Point *Compton* 10264 (KIR); Palmiet River *Zeyher* 2409 (CTM). BREDASDORP: Rietfontein Poort *Bolus* 8750 (BOL, K, p. pte), 8752 (PRE); *Schlechter* 9691 (BM, BOL, G, K), 10593 (BM, BOL, GRA). WITHOUT LOCALITY: *Wallich* (G).

12. *R. latiloba* A.DC. in DC. Prodr. 7. 447. 1839.

A shrublet 15—30 cm. high, erect, with ascending branches. Leaves 4—5 mm. long, usually squarrose, linear, ciliate near the base. Flowers solitary. Bracts few, like the leaves but with linear pinnate teeth. Calyx longer than the bracts, the lobes broadly triangular, 6—7 mm. long, 3—4 mm. wide, acute, externally densely covered with short stout hairs, hairy inside, the edges slightly revolute near the top, usually with 1—2 teeth lower down. Corolla pale blue or white, concolorous, 1—1.5 cm. long, the lobes twice as long as the tube.

Rare and apparently discontinuous. On low hills.

The type is *Drège* 6322 in herb DC., Geneva.

A very distinctive species but seldom collected.

CLANWILLIAM: Zwartbastkraal *Drège* 6322 (K, OXF, P, G, S).

BREDASDORP: Brandfontein *C. A. Smith* 5033 (PRE).

The Bredasdorp plants have narrower and more acute calyx lobes than *Drège's* specimens.

13. *R. recurvata* A.DC. in DC. Prodr. 7. 447. 1839.

A small erect shrublet, branched especially from the base, 10—25 cm. high. Stems usually glabrous. Leaves crowded, squarrose or the lower reflexed, flat, rigid, 3—4 mm. long, acute, remotely ciliate, slightly decurrent. Flowers usually solitary, terminal, surrounded by numerous bracts like the leaves but slightly wider, more crowded, and squarrose-recurved, the innermost with narrow teeth near the tip. Calyx lobes lanceolate, flat, acute, 4 mm. long, toothed near the tip, the tip and teeth recurved. Corolla campanulate, blue or white, 1—1.5 cm. long, the lobes shorter than the tube. Ovary minutely hairy.

Endemic on sandy soils at low levels in the southern part of the Cape Peninsula.

The type is *Drège* 6323 in herb. DC., Geneva.

CAPE: Muizenberg *Galpin* 12555 (PRE, p. pte); *Levy* (CT); Steenberg *Adamson* 3496; *Levy* 5617 (CT); Kalk Bay Mts. *Potts* (CTM); Red Hill *L. Bolus* (CT), 14273 (BOL); Olifantsbosch *Galpin* 12723 (K, p. pte, PRE); *Salter* 4263 (BOL); Klaasjagers *Levy* (CT); Smitswinkel *Salter* 292/16 (BM, K); Rooihooft *Adamson* 3156; Patrys Vlei *Compton* 19368 (KIR); Paulsberg *Adamson* 1722, 2469; *Salter* 5826 (BM, K); Cape Point *Adamson* 2768; *Michell* (CT); *Schlechter* 7321 (BM, G, GRA, K). WITHOUT LOCALITY: *Drège* 6323 (G, S), sn (G); *Sir F. Gray* (P).

14. *R. Goodiana* *Adamson* J. S. Afr. Bot. 5. 55. 1939.

R. ericoides Good J. Bot. 62. 48. 1924. non Spreng. nec Buek.

Much like *R. recurvata* but softer, less branched and a paler green.

Leaves flat, acute, 4—6 mm. long, squarrose-spreading or ascending, not reflexed even when old. Bracts not recurved, like the leaves. Calyx lobes flat, often red, 4—6 mm. long, acute, 3-toothed at the tip, the tip and teeth erect. Corolla, white, rarely over 1 cm. long.

A local endemic confined to a small area in the Klaver Valley near Simonstown.

The type is *Moss* 7508 in herb. B.M.

Closely allied to *R. recurvata* but distinguished by the longer, more spreading, pale green, not recurved leaves; the regularly 3-toothed calyx lobes; and the small white corolla.

CAPE: Klaver Valley *Adamson* 183 (PRE), 823 (CT, PRE); *Levy* 5133 (CT); *Moss* 7508 (BM, J. PRE); *Salter* 292 17A (BM), 1943 (BM, K), 5801 (CTM, K).

Series 3. SPICATAE.

Folia linearia non decurrentia. Flores in capitulis 1—5 floriferis dispositi, bracteis latis saepissime dentatis circumdati.

Shrublets. Leaves linear, not decurrent, usually with axillary fascicles of smaller leaves. Flowers in heads with 1—5 flowers, surrounded by broad-based, almost clasping bracts usually toothed at the top. Corolla rarely over 1.5 cm. long.

KEY TO THE SPECIES.

1. Outer bracts leaf-like but broad-based: calyx lobes densely hairy: corolla with spreading lobes: style longer than the corolla 15. *lightfootioides*
1. Outer bracts not leaf-like: corolla tubular or campanulate: style not as long as the corolla.
 2. Flower heads 1.5 cm. or more long and wide: leaves over 1 cm. long.
 3. Leaves crowded, rigid, squarrose: bracts folded, 5-toothed 16. *compacta*
 3. Leaves scattered, soft: bracts not folded.
 4. Erect: flower heads 2 cm. long: bracts glabrous, toothed or lobed at the top . . 17. *glomerata*
 4. Prostrate: flower heads not over 1 cm. long: bracts ciliate, orbicular, cuspidate 20. *cuspidata*
 2. Flower heads less than 1 cm. long: leaves usually less than 1 cm. long.
 5. Flower heads few-flowered, aggregated: bracts longer than wide, acuminate . . 18. *spicata*
 5. Flower heads compact, often solitary: bracts as wide as long.

6. Bracts truncate, 5—7-toothed, the teeth squarrose or recurved: corolla less than 1 cm. long 19. *secunda*
6. Bracts orbicular-cuspidate, the outer entire, the inner toothed: corolla at least 1 cm. long 20. *cuspidata*

15. **R. lightfootioides** Schlechter Bot. Jahrb. 24. 482. 1898.

A small prostrate or semi-erect woody plant, 4—15 cm. high with many erect branches. Young stems hairy. Leaves crowded, linear, 5—6 mm. long, coarsely ciliate, acute or almost mucronate, the midrib rather bulging below. Flowers in loose terminal heads with 1—4 flowers, most commonly 2 or 3. Bracts widened at the base, glabrous but ciliate and often with some hairs on the midrib, the outer like the leaves but with a sheath 2 mm. long and wide, the inner clasping, with a narrow point 3 mm. long, and smaller lateral teeth. Calyx lobes longer than the bracts, lanceolate-acuminate, 1.5—2 mm. wide, densely covered with very short hairs. Corolla white, 0.7—0.8 cm. long, twice as long as the calyx lobes, with spreading rather narrow lobes twice or more times as long as the tube. Style as long as or longer than the corolla. Ovary hairy.

Confined to sandy soils on lower mountain slopes in the Caledon Division.

The type is *Schlechter* 7397 in herb. Berlin.

Apparently rare. In the features of the bracts the species forms a transition between the Series *Prostratae* and *Spicatae*.

CALEDON: Houwhoek *Schlechter* 7397 (BM, BOL, CTM, G, GRA, K, P, PRE, S); Caledon *Purcell* (CTM).

16. **R. compacta** Schlechter Bot. Jahrb. 27. 193. 1900.

Stems woody, prostrate with ascending tips, branched mostly from the base, 10—30 cm. long. Young stems densely hairy, almost completely hidden by the crowded squarrose leaves and axillary fascicles of smaller leaves. Leaves 4—9 mm. long, 1—4 mm. wide, strongly revolute, acute or almost pungent, entire or with 1—2 pairs of lateral teeth, the margins and sometimes the underside with stout setose hairs. Flowers in terminal heads, 1.5—3 cm. across. Bracts much broader than the leaves, coarsely ciliate, with strongly revolute margins, the outermost pinnately toothed, the inner folded round the flower, with 5 almost equal teeth. Bracts often hispid on the back. Calyx lobes longer than the bracts, 3—7 mm. long, lanceolate, acuminate, glabrous. Corolla pale blue or white, yellowish

on fading, about 1 cm. long, campanulate, the lobes as long as the tube. Style slightly thickened below the stigma. Ovary glabrous.

Confined to limestone or sand over limestone near the coast in the extreme south-west.

The type is *Schlechter* 9714 in herb. Berlin.

CAPE: Nr. Buffels Bay *Adamson* 2461A (BOL, CT, CTM); *Levyns* (CTM); *Lewis* (CTM); *Salter* 292/14 (BM, BOL, K), 8008 (BOL, KIR, PRE). BREDASDORP: Ratel River *Bolus* 8572 (BOL, K); *Schlechter* 9714 (BM, BOL, G, K, P, PRE, S); Cape Agulhas *Pillans* 2543, 8157 (BOL); *Salter* 4112 (BM, K); *L. E. Taylor* 1586 (GRA, PRE); Hagekraal River *Compton* 19031 (KIR); *Leighton* 2543 (BOL); Baardscheedersbosch *Barker* 5293 (KIR).

N.B.—In several cases the sheets of the type number (*Schlechter* 9714) contain portions of other plants.

17. *R. glomerata* A.DC. in DC. Prodr. 7. 444. 1839.

Stems up to 50 cm. high, glabrous, ridged, woody below, erect, branched mostly from the base. Leaves numerous but not crowded, 0.5—1.5 cm. long, 2—4 mm. wide, soft, flat, spreading or ascending, entire or with occasional teeth, ciliate at the extreme base otherwise glabrous, with or without axillary fascicles of small leaves. Flowers in dense heads, on the main stem and on long or short lateral branches, many-flowered, 1.5—3 cm. long and about as wide. Bracts broad, clasping, glabrous, acutely 3—7-toothed or lobed at the top, slightly thickened at the edges, the outer with the central lobe longer than the others, the inner with almost equal teeth. Calyx lobes longer than the bracts, glabrous, acute or acuminate, about half as long as the corolla. Corolla white, pale blue, mauve or pinkish, 1—2 cm. long, the lobes longer than the tube. Ovary glabrous.

Grassy places at low altitudes in the eastern districts. Most often on sand and near the coast.

The type is *Drège* 4011 in herb. DC., Geneva.

The largest species and the only one that extends beyond the limits of the sclerophyll vegetation.

CAPE: East London *Barker* 1289 (KIR); *Galpin* 3129 (PRE); *Potts* 1795 (BOL); *C. A. Smith* 3829 (PRE); Bonza Bay *Acock* 9550 (PRE); Overton *Hilner* 280 (PRE); Kei Mouth *Flanagan* 460 (CTM, GRA, PRE); Omsamcaba *Drège* 4011 (BM, G, K, OXF, P, S); *MacOwan* 1633 (G). NATAL: Port Shepstone *Weeks* 87bis (J); *Wood* 397 (PRE); Durban *Harvey* (BM); *Wood* 233 (BM, BOL, GRA, K, CTM), 7504 (P), sn (GRA); Clairmont *Gerrard & McKen* 872 (S); *Schlechter* 2833 (GRA); *Wood* 1003 (PRE), 1033 (BM, BOL, CTM, G, K, P, PRE), 5524 (PRE); Zululand *Gerrard* 393 (BM, K), 623 (BM), 1502 (BM); Uvongo *Acock* 10906 (PRE).

18. *R. spicata* L.f. Supp. Pl. 143. 1781.

R. bracteata A.DC. Monog. Camp. 179. 1830. *Campanula bracteata* Thunb. Phyto. Bl. 30. 1797; Fl. Cap. ed Schultz 171. 1823. *R. Eckloniana* Buek in E. & Z. Enum. 385. 1837. *R. ericoides* Buek l.c. *R. campestris* A.DC. in DC. Prodr. 7. 447. 1839.

An erect or diffuse ericoid shrublet up to 40 cm. high, usually with many ascending branches. Stems hairy. Leaves usually crowded, spreading or ascending, linear, 3—7 mm. long, flat above, obtusely keeled below, more or less trigonous, glabrous but most often coarsely ciliate near the base, sometimes covered with short hairs, most often with axillary fascicles of small leaves. Flowers in terminal and lateral heads, usually crowded in a spike-like inflorescence. Heads longer than wide, 4—8 mm. long, 3—6 mm. wide, each with 1 or less often 2 or 3 flowers. Bracts glabrous or covered with short hairs, 4—8 mm. long, broad-based, ovate in outline, acute or more often acuminate, with a narrow point 2—3 mm. long; the outer entire or with a few teeth, the inner with few or many teeth. Calyx longer than the bracts, the lobes lanceolate, acute, 3—5 mm. long. Corolla white, tubular-campanulate, 0.6—1.3 cm. long, the lobes as long as or longer than the tube. Filaments ciliate at the base. Style hairy. Ovary hairy.

Mountain slopes usually among rocks on the ranges along the south coast from Caledon to Port Elizabeth.

The type is in herb. Thunberg, Uppsala.

Possibly a composite species. Variable in habit, leaf-length and in the shape of the bracts. The bracts range from ovate to truncate-acuminate, and from many to few toothed, with the teeth long or short. The point of the bract may be erect or bent outwards. Several of the variations have been given specific rank but the distinctions are not sharp and intermediate forms occur. Pending detailed field investigation, they are all grouped under one species for convenience.

CALEDON: Genadendal *Burchell* 7923 (K), 7986 (K). BREDASDORP: Elim Compton 5289 (KIR). SWELLENDAM: Zuurbraak *Thode* A2346, A2347 (PRE). RIVERSDALE: Riversdale *Schlechter* 1758 (BOL, J); *Langeberg Hafstrom & Acock* 2010 (PRE); *Garcias Pass Adamson* 4365, 4371, 4374; *Wall* 2475, 2485, 2491 (S). PRINCE ALBERT: *Swartberg Pass Adamson* 4352, 4363; *Wall* 439/30 (S); *Zeyher* 2410 (CTM). MOSSEL BAY: *Reutersbosch Salter* 3245 (BOL). GEORGE: *Camfer Stn. Esterhuysen* 16791 (BOL). UNIONDALE: *Avontuur Fourcade* 2073 (BOL), 2486 (BOL, PRE); *Esterhuysen* 16777 (BOL); *Ongelegen Bond* 922 (KIR); *Esterhuysen* 4693 (BOL). HUMANSDORP: *Wit Els Bosch Fourcade* 2073 (PRE); *Jeffreys Bay Fourcade* 5910 (KIR), 5917 (BOL). UITENHAGE: *Gamtsoos River Ecklon & Zeyher* 2408 (CTM, p. pte, S); *Van Stadens River Burchell*

4645 (K); *Zeyher* 2414 (CTM); Bethelsdorp *Drège* 6321 (BM, G, K, OXF, P, S). PORT ELIZABETH: Parsons Vlei *F. R. Long* 497, 926 (K, PRE). CATHCART: Cathcart *Moss* 15325 (J). WITHOUT LOCALITY: *Harvey* (K), 1153 (BM); *Montini* (S); *Prior* (K); *Verreaux* (G); *Zeyher* 3417 (S).

Var. **Burchellii** Adamson var. nov.

Folia laxa distantia. Capitula laxa. Bractee paucidentatae acumine longissimo. Calycis lobi corollae aequilongi.

Sprawling, subherbaceous or woody at the base only. Leaves distant, soft, 0.5 cm. long, concave above, coarsely ciliate. Heads lax, the bracts scarcely clasping. Bracts with a very long point with 1—2 very short teeth at its base. Calyx lobes 0.5—0.7 cm. long, about as long as the corolla.

The type is *Burchell* 6849 in herb Kew.

RIVERSDALE: Klein Vette River *Burchell* 6849 (K, P).

19. **R. secunda** Buek in E. & Z. Enum. 386. 1837.

Prostrate, sprawling or occasionally erect shrublets with many short, often second branches. Stems hairy, up to 50 cm. long, the branches 5—8 cm. Leaves glabrous or shortly hairy, crowded, more or less squarrose, flat, 3—7 mm. long, ciliate, occasionally toothed, with axillary fascicles. Flower heads terminal, compact, as broad as long, usually 3-flowered, less often 1, 2, or 5, the heads sometimes grouped. Bracts covered with short hairs or rarely glabrous, the outer ovate-acuminate, the inner truncate and 5—7-toothed at the top, the central tooth as long as or longer than the others. Teeth on the bracts squarrose or recurved in the later stages. Calyx lobes 3—5 mm. long, longer than the bracts, lanceolate, acute, the tips bent outwards. Corolla white, tubular, 4—8 mm. long, the lobes about as long as the tube. Style hairy, as long as the corolla, stigma lobes truncate. Disc concave, yellow. Ovary very shortly hairy.

Dry sandy or stony slopes at low elevations along the south coast.

The type is *Zeyher* 3150 in herb Berlin.

Somewhat variable in habit. Distinguished by the small compact heads, truncate toothed bracts and small flowers. Specimens in herbaria have been labelled *R. glauca* or *R. prostrata* (E. & Z. non A.DC.).

SWELLENDAM: Potteberg *Adamson* 3902, 3918; *David* (KIR). MONTAGU: Baths *Bolus* 7881 (BOL, K), 2763 (KIR). RIVERSDALE: Riversdale *L. Bolus* (BOL); Still Bay *Muir* 3166 (PRE); Gouritz River *Zeyher* 2415 (BM, CTM, G, OXF, P, S). OUDTSHOORN: Oudtshoorn *Bolus* 12102 (BM, BOL, K). KNYSNA: Knysna *Wall* (S). GEORGE: Meulen Riv. *Moss* 21338 (J). UNIONDALE: Prince Alfreds Pass *Zinn*

(CTM); Long Kloof *de Castelnau* 294 (P). Uitenhage: Van Stadens River *Burchell* 4481 (K, P); Bethelsdorp *Zeyher* 3150 (CTM, G, K); Swartkops River *Drège* (P); *Zeyher* 3151 (CTM, G); Uitenhage *Zeyher* 447 (CTM). WITHOUT LOCALITY: *Ecklon & Zeyher* (CGE), 2414 (BM, CTM, G, OXF, P); *Harvey* (K).

A specimen collected by *Zeyher* (BOL) is labelled "Kamiesberg". The label is not original and the locality seems unlikely.

20. ***R. cuspidata*** Adamson sp. nov.

Caules prostrati hirsuti pauciramosi. Folia laxa fasciculata plano-convexa, basi ciliata. Flores in capitulis densis aggregati, capitulis solitariis vel spicatis, saepissime trifloris. Bractee latae, dense ciliatae suborbiculares, exteriores acuminato-cuspidatae, interiores apice dentatae. Calycis lobi acuminati bracteis multo longiores. Corollae lobi tubo longiores vel aequilongi.

Prostrate with many not much branched stems from a woody base. Stems 15—50 cm. long, the younger ridged, hispid. Leaves scattered, not crowded, spreading, often secund, plano-convex, 0·7—1·5 cm. long, glabrous or coarsely ciliate in the lower half, usually with axillary fascicles. Flower heads compact, often wider than long, 0·6—0·8 cm. long, 0·7—1·2 cm. wide, solitary or in close spicate groups, each with 1—5, most commonly 3 flowers. Bracts usually glabrous but edged with dense short close cilia, more or less orbicular, the outer entire, cuspidately acuminate, the inner toothed at the top with the central tooth longer than the others. Teeth on the bracts often bent outwards in the later stages. Calyx lobes up to 1 cm. long, much longer than the bracts, lanceolate-acuminate, in the bud concave at the back with the edges projecting. Corolla campanulate, white or pale blue, 1—1·5 cm. long, divided half way or more. Style hairy, about as long as the corolla. Ovary glabrous or very minutely hairy.

Lower mountain slopes on open clay or gravel soils in the Caledon-Bredasdorp region.

The type is *Adamson* 4452 in herb Bolus.

CALEDON: Houwhoek *Adamson* 4421; *Guthrie* 4956 (BOL); *Schlechter* 7401 (BM, BOL, G, GRA, K, P, PRE, S); Shaws Mt. *Adamson* 4452; *Barker* 7195 (KIR); Genadendal *Bolus* 6949 (BOL). BREDASDORP: Elim *Bolus* 8571 (BOL, KIR, PRE); Bredasdorp *Galpin* 11245 (K, PRE), 11245a (K); *Guthrie* 4480 (KIR). WITHOUT LOCALITY: *Bolus* 9235 (BOL, K).

Var. ***hispidia*** Adamson var. nov.

A typo differt foliis hispidis plus minusve revolutis; capitulis majoribus trifloris; bracteis hispidis ovato-lanceolatis, acutis, lacerato-serratis.

Differs in the leaves being more or less revolute and hispid; the heads larger with 3 or more flowers; the bracts hispid, ovate-lanceolate, acute, 0.5—0.7 cm. long, the margins more or less deeply lacerate-serrate; and the calyx lobes acute, 0.5 cm. long.

The type is Compton 20997 in herb. Bolus.

BREDASDORP: The Poort *Compton* 20997 (BOL, KIR).

Series 4. SQUARROSAE.

Suffruticosae. Folia ovata, decurrentia, non fasciculata. Flores capitati, capitulis bracteis latis circumdatis.

Erect or sprawling plants with more or less woody stems. Leaves scattered or crowded, ovate, toothed, more or less decurrent at the base, without axillary fascicles. Flowers in heads surrounded by broad often clasping bracts. Corolla campanulate.

Like the Series *Spicatae* but with broader decurrent leaves. All the species confined to the Cape Peninsula.

KEY TO THE SPECIES.

1. Annual: leaves ovate-lanceolate: bracts broadly lanceolate with squarrose tips 21. *decurrens*
1. Perennials: leaves ovate or rounded: bracts rotund-ovate.
 2. Sprawling, slender: leaves with a ciliate decurrent wing: bracts irregularly toothed, not reflexed at the tip 22. *squarrosa*
 2. Erect, stout: leaves with a glabrous decurrent wing: bracts regularly serrate, the tip reflexed 23. *amplexicaulis*

21. *R. decurrens* L'Hérit. Sert. Ang. 2. t.6. 1784.

R. glabra Poir. Enc. Meth. 6. 252. 1804.

Annual though perennating in shaded situations. Stems erect or sprawling, often rigid and more or less woody, up to 70 cm. high, with many spreading or ascending branches, those at the base often very long. Leaves scattered, ovate-lanceolate or oblong, 0.4—1.2 cm. long, 0.3—0.5 cm. wide, acute, sharply toothed, in open sites rigid and prickly, the bases with short smooth decurrent wings. In shaded plants the leaves are spreading, in open sites falcate-squarrose, with the older reflexed. Flower heads small, terminating all the branches, often 1-flowered but sometimes 2—5. Bracts wider than the leaves and more rigid, 0.7—1.5 cm. long, 0.4—0.7 cm. wide, not clasping, toothed in the upper part, ciliate below, the long acuminate point squarrose. Calyx lobes slightly longer than the bracts, ciliate, acuminate, sometimes

subpungent. Corolla 1—1.5 cm. long, pale blue or almost white, funnel-shaped, the lobes almost twice as long as the tube. Ovary glabrous.

On the upper and eastern slopes of Table Mountain.

The type is "Hort. Kew" in herb. B.M.

Variable in size and habit: plants from open and shaded situations may look very different. Flowers only in the open, most freely after fires.

Table Mt. *Bolus* 7966 (BOL); *Compton* (CT), 17377 (BOL, KIR); *Flanagan* 2403 (PRE); Disa Gorge *Esterhuysen* 12630 (KIR); Newlands *Wolley-Dod* 2230 (BM); Window Gorge *Morris* 5 (KIR); Nursery Gorge *Esterhuysen* 1B, 36 (KIR); Kirstenbosch *Adamson* 3494 (CT); *Moss* 1702 (BM), 18993 (BM); *Esterhuysen* 1 (KIR, PRE) sn (PRE); *Kies* 13 (KIR); *Salter* 5773 (BM, BOL, CT, K); Smitswinkel *Compton* 8709 (KIR)!. WITHOUT LOCALITY: *Masson* (G). "Hort. Kew" (BM).

22. *R. squarrosa* Berg. Desc. Pl. Cap. 43. 1767.

R. filiformis Lam. Illustr. 11. 66. 1797.

Prostrate or sprawling, occasionally semi-erect. Stems up to 80 cm. long, branched, often very slender, glabrous, slightly woody in the older parts. Leaves usually scattered, sometimes close, ovate, 4—5 mm. long, 2—3 mm. wide, acute, squarrose, often falcate, toothed, ciliate at the base, the decurrent wings ciliate. Flower heads rarely over 1 cm. across, with 1—3 flowers. Bracts rotund-ovate, 4—6 mm. long, 3—4 mm. wide, acute, with rather irregular distant teeth near the top, ciliate at the base. Tips of the bracts squarrose. Calyx lobes not or very slightly longer than the bracts, 3—4 mm. long, acute, usually ciliate. Corolla white with blue veins or tinged with blue, 0.5—1.2 cm. long, the acute lobes as long as the tube. Ovary glabrous.

On the upper parts of the mountains from Table Mt. southwards to Simonstown. Usually among rocks.

Often confused with *R. decurrens*. Distinguished by the shorter broader leaves with ciliate decurrent wings, the more compact heads, the rotund-ovate bracts, and the broader less pointed calyx lobes.

CAPE: Table Mt. *Adamson* 1617 (CTM), 1620 (CT), 1642; *Alexander* (K); *Andrae* A251 (PRE); *Bolus* 11426 (GRA); *Ecklon* 696 (OXF, S); *Ecklon & Zeyher* 2412 (CTM); *Esterhuysen* 10034 (BOL, PRE), 11389 (BOL), 12630 (BOL, PRE); *Galpin* 4905 (GRA, PRE); *Gillett* 770 (K); *Harvey* (BM, K); *Hafstrom* (S); *Kensit* 11426 (BOL); *Levy* (CT); *Mogg* H13686, H13746 (PRE); *Pappe* (CTM); *Stokoe* (CTM); *Wolley-Dod* 806 (BOL), 2230 (BM); *Zeyher* (CTM, S); Nursery Gorge *Compton* 15483 (KIR), 21887 (KIR); Window Gorge *Compton* 8542, 13016 (KIR); Kirstenbosch *Moss & Rogers* 18993 (J); Orange Kloof *Schlechter* 263 (G, P);

Devils Peak *Salter* 292/17B (BM); Twelve Apostles *Wolley-Dod* 2395 (BOL, K); Groot Kop *Esterhuysen* 10034 (BOL); Noordhoek Mts. *Adamson* 2434; *Salter* 1958 (BM, K); Vlaggenberg *Adamson* 1752; Constantiaberg *Compton* 14457 (KIR, PRE); Chapmans Peak *Compton* 8482 (KIR); Steenberg *Wolley-Dod* 808 (BOL); Muizenberg *Bolus* 2980 (CTM, p. pte); *Salter* 5783 (CT); Kalk Bay Mts. *Bolus* 2980 (BM); *Galpin* 12555 (K, PRE); *Salter* 292/19 (BM, K), 2993 (BOL), 2993A (BOL, BM), 4322 (BM, BOL, K, PRE); St. James *Moss* 7558 (BM, J); Swartkop *Adamson* 2473; Klaver Valley *Levyms* (CT). WITHOUT LOCALITY: *Aiton* (G); *Auge* (BM); *Commerson* (G); *Delessert* (G); *Ecklon* (S); *Forsyth* (K); *Harvey* 579 (K); *Grubb* (S); *Lehmann* (P); *Masson* (BM); *Oldenburg* (S); *Poiret* (P); *Richard* (P); *Swartz* (S); *Sonnerat* (P); *Thunberg* (S); *Wahlberg* (S); *Wallich* (CGE); "Hort. Kew" (BM).

23. *R. amplexicaulis* Wolley-Dod J. Bot. 39. 400. 1901 (as *amplexicaule*).

Glabrous. Like *R. squarrosa* but larger, more erect, more rigid, and with larger flower heads. Stems woody, up to 50 cm. high, usually branched from below the flower heads only. Leaves crowded, often overlapping, rotund-ovate, 0.6–1 cm. long, 0.4–0.8 cm. wide, rigid, squarrose, falcate, concave above, clasping at the base, with short smooth decurrent wings. Leaves sharply serrate on the upper part, ciliate on the lower, the tip acute or acuminate and almost pungent. Flower heads 2–4 cm. diam., with 3–8 flowers. Bracts almost orbicular, 0.7–1.3 cm. long, 0.7–0.9 cm. wide, rather regularly serrate on the upper part, ciliate on the lower, the acute tip reflexed. Calyx lobes 5–7 mm. long, scarcely longer than the bracts, 2 mm. wide, acute, ciliate, shorter than the corolla tube. Corolla white or pale blue, 1.2–2.2 cm. long, with broad subacute lobes half as long as the tube. Corolla often hairy inside. Style slightly widened below the stigma. Ovary glabrous.

Endemic to the southern part of the Cape Peninsula. Frequent south of Fish Hoek, less so north to Constantia Nek. Usually among rocks.

The type is *Wolley-Dod* 808 in herb B.M.

Some of the specimens distributed under the type number are not this species but *R. squarrosa*.

CAPE: Hout Bay *Acock* 2848 (S); Steenberg *Wolley-Dod* 808 (BM, K); Muizenberg *Bolus* 2980 (CTM, p. pte); *L. Bolus* (CT); *Guthrie* 1375 (CT); *Schlechter* 598 (P); Kalk Bay Mts. *Adamson* 2402; *Bolus* 2980 (BOL); Silvermine Valley *Compton* 14282 (KIR); Fish Hoek *Hafstrom* (S); Glencairn *Levyms* (CT); Simonstown *MacGillivray* 659 (K); *Miniki* (CTM); *Milne* 154 (K); *Ryder* 153 (K); Red Hill *Adamson* 688 (PRE); *Fairall* 197 (KIR); *Levyms* 5616 (CT); Klaver Valley *Adamson* 827; *Moss* 7491 (BM, J); *Levyms* (CT); *Salter* 292/12A (BM), 5889 (BM, K); *Kommetje*

Adamson 694; *Olifantsbosch Barker* 4018 (KIR); *Galpin* 12724 (K, PRE); *Schusterskraal Compton* 12998 (KIR); *Theefontein Compton* 21847 (KIR); *Bonteberg Compton* 10624 (KIR); *Klaasjagers Miniki* (CTM); *Salter* 5756 (CT); *Hesters Dam Levyns* (CT); *Paulsberg Adamson* 1678 (BOL), 2468

A specimen (*Moss* 19002 (J)) is labelled "Maritzburg" probably in error.

Series 5. MUSCOSAЕ.

Subherbaceae, prostratae. Folia vix congesta, non fasciculata, dentata. Flores solitarii, sine bracteis. Corolla parva.

Small usually prostrate almost herbaceous plants. Leaves scattered, toothed, without axillary fascicles. Flowers solitary, without bracts though with 1 or 2 leaves immediately below. Corolla concolorous, not over 1·5 cm. long.

KEY TO THE SPECIES.

- | | |
|---|--------------------|
| 1. Leaves glabrous, narrowed to the base | 24. <i>muscosa</i> |
| 1. Leaves hairy, at least below, with a distinct petiole .. | 25. <i>insizwe</i> |

24. *R. muscosa* L.f. Supp. Pl. 143. 1781.

Low-growing, in flat patches 1 m. or more across, sometimes dense and almost cushion-like. Stems mostly in the ground, woody at the base only, the upper parts slender, much branched, herbaceous, glabrous. Leaves crowded towards the tips of the stems, ovate, 4—6 mm. long, spreading, often falcate, acute, flat, glabrous, the edges with 2—3 serrate indentations ending in a very short seta. Leaves gradually narrowed to a very short petiole sheathing the stem. Flowers solitary, terminal, with 1 or 2 leaves at their base. Calyx lobes lanceolate, acute, 2—3 mm. long, edged with scattered long cilia. Corolla 1—1·5 cm. long, violet-blue with the base of the tube white, campanulate, the spreading or reflexed lobes shorter than the tube. Filaments very shortly flattened at the base. Style about as long as the corolla tube, hairy in the upper part. Disc glabrous, flat at first but becoming hemispherical. Ovary glabrous. Fruit about 4 mm. long, opening by a small pore at the apex of the enlarged disc. Calyx lobes enlarged in fruit and reddish.

On the uppermost parts of mountains in the extreme south-west. Most often on sand among rocks.

The type is in herb. Thunberg, Uppsala.

CAPE: Table Mt. *Acock* 4901 (S); *Adamson* 1627 (CT), 2738, 4454; *Bolus* 3885 (BOL); *Bond* 964 (KIR); *Burchell* 636 (G, K), 639 (P); *Compton* 12939 (KIR), sn (CT); *Drège* 6305 (G, P, S); *Ecklon* (S); *Ecklon & Zeyher* 2413 (CTM); *Hafstrom* (S); *Harvey* (BM); *Goulimis* (BOL);

Lervyns (CT); *MacBold* (BOL); *Moss* 7530 (BM); *Oldenburg* (BM); *Schlechter* 164 (GRA, P). STELLENBOSCH: Victoria Peak *Esterhuysen* 14373 (BOL). CALEDON: Kogelberg *Esterhuysen* 9984 (BOL). WITHOUT LOCALITY: *Lindley* (CGE); *Oldenburg* (BM); *Thunberg* (S).

25. *R. insizwae* Zahlbr. Ann. K. K. Hofm. Wien. 18. 401. 1903.

Prostrate herb very much like *R. muscosa* but covered with scattered hairs. Leaves up to 1.4 cm. long, hairy below, rather abruptly narrowed to a petiole. Calyx lobes 7—9 mm. long, oblong-triangular, minutely toothed. Corolla almost white, 1.3—1.5 cm. long.

The type is *Penther* 2759 in herb. Vienna. A somewhat doubtful species of which no specimen has been seen. Only once collected in Griqualand East.

EXCLUDED SPECIES.

R. elegans Paxt. Mag. Bot. 6. 27. 1839.

This is not a *Roella* and almost certainly does not belong to Campanulaceae. It has epipetalous stamens. Though described as having a 2-chambered inferior ovary, the plate suggests a superior one, it might be referable to Gesneraceae.

LIST OF NUMBERED SPECIMENS QUOTED.

Prismatocarpus.

ACOCK. 19 *fruticosus*; 150 *fruticosus*; 2619 *diffusus*; 3820 *sessilis*.

ADAMSON. 457 *fruticosus*; 458, 459 *diffusus*; 470 *diffusus*; 518 *sessilis*; 529 *diffusus*; 819, 821, 822 *sessilis*; 824 *fruticosus*; 1536 *pilosus*; 1568 *pilosus*; 1569 *fruticosus*; 1589 *fruticosus*; 1632 *sessilis*; 1646, 1648 *sessilis*; 1659 *fruticosus*; 1749 *fruticosus*; 2387 *fruticosus*; 2429 *nitidus*; 2435 *fruticosus*; 2460, 2466 *sessilis*; 2781 *fruticosus*; 3105 *fruticosus*; 3137 *diffusus*; 3138 *pilosus*; 3139 *fruticosus*; 3492 *fruticosus*; 3606 *debilis*; 3635 *nitidus* v. *ovatus*; 3877 *lasio-phyllus*; 3882 *debilis*; 3883 *lasiophyllus*; 3888 *tenerrimus*; 3895 *sessilis*; 3899, 3900, 3906 *spinosus*; 3908 *campanuloides*; 3922 *diffusus*; 3923 *brevilobus*; 3925 *diffusus*; 4024 *pedunculatus*; 4030 *brevilobus*; 4033 *brevilobus*; 4086, 4089, 4092 *fruticosus*; 4106, 4107, 4108 *pilosus*; 4109 *fruticosus*; 4111 *pilosus*; 4112 *fruticosus*; 4113 *pilosus*; 4114 *fruticosus*; 4117 *pilosus*; 4118 *pilosus*; 4119 *fruticosus*; 4122, 4125 *fruticosus*; 4127 *pilosus*; 4130, 4133 *fruticosus*; 4138 *diffusus*; 4157 *fruticosus*; 4173 *cordifolius*; 4183 *sessilis*; 4190 *tenerrimus*; 4204 *tenerrimus*; 4316, 4318 *campanuloides*; 4330 *fruticosus*; 4336, 4342 *cliffortioides*; 4349 *hispidus*; 4350 *fruticosus*; 4351 *hispidus*; 4366 *tenerrimus*; 4382 *fruticosus*; 4385 *fruticosus*; 4399 *pedunculatus*; 4415, 4416, 4424, 4429 *fruticosus*; 4431 *campanuloides*; 4444 *fruticosus*; 4446 *tenerrimus*; 4448 *campanuloides*; 4453 *nitidus*; 4461 *diffusus*.

ALLEN. 118 *rhodesicus*.

ANDREAE. 191 *fruticosus*; 363 *campanuloides*; 775 *lycopodioides*; 797 *brevilobus*; 810 *Schlechteri*.

BARKER. 476 *diffusus*; 1031 *campanuloides*; 1288, 2177 *campanuloides*; 3959 *sessilis*; 3995 *sessilis*; 4466 *pilosus*; 4467 *fruticosus*; 5262 *campanuloides*; 5284 *spinosus*; 7192 *brevilobus*? × *fruticosus*.

BOLUS. 632 *brevilobus*; 633 *diffusus*; 3051 *campanuloides*; 3289 *sessilis*; 3299 *nitidus*; 4058 *fruticosus*; 4059 *diffusus*; 4161 *diffusus*; 4304 *pedunculatus*; 4653 *fruticosus*; 5103, 5104 *pedunculatus*; 7087 *sessilis*; 7305 *debilis*; 8337 *debilis* v. *elongatus*; 8573 *pedunculatus*; 8574 *indet.*; 8662 *Rogersii*; 9818 *fruticosus*; 9906 *campanuloides*; 13152 *fruticosus*; 13667 *pedunculatus*.

A. BOLUS. 4416 *alpinus*.

BOND. 817 *diffusus*; 1325 *crispus*; 1417 *fruticosus*; 1557 *sessilis*.

J. BORLE. 12 *rhodesicus*.

BURCHELL. 615 *nitidus*; 785 *fruticosus*; 964 *sessilis*; 4529 *campanuloides*; 4598 *campanuloides*; 5960 *Rogersii*; 7341 *debilis*; 7376 *sessilis*; 7551, 7586 *campanuloides*; 7596 *fruticosus*; 7613 *campanuloides*; 7665 *tenerrimus*; 7735 *debilis*; 7807 *diffusus*; 7969 *fruticosus*; 8280 *diffusus*; 8630 *campanuloides*.

BURTT-DAVY. 12111 *campanuloides*.

DE CASTELNAU. 268 *fruticosus*; 299 *fruticosus*; 334 *campanuloides*.

COMPTON. N.B.G. 76/48 *diffusus*; 2787 *fruticosus*; 3632 *crispus*; 5733 *pedunculatus*; 6232 *fruticosus*; 6233 *diffusus*; 8289 *sessilis*; 8309 *diffusus*; 8355 *fruticosus*; 8456 *alpinus*; 8474 *diffusus*; 8480 *fruticosus*; 8562 *nitidus*; 8575 *diffusus*; 8833 *diffusus*; 8850 *lycioides*; 9947 *pedunculatus*; 9951 *fruticosus*; 10056 *pedunculatus*; 10129 *fruticosus*; 10267, 10297 *fruticosus*; 12439 *diffusus*; 12502 *fruticosus*; 12540 *sessilis*; 12846, 12853 *fruticosus*; 12883 *brevilobus*; 12949, 12970 *diffusus*; 12976 *fruticosus*; 12986 *diffusus*; 13141 *campanuloides*; 13167 *virgatus*; 14441 *nitidus*; 14388 *Rogersii*; 14391 *Rogersii*;

- 15002 *pedunculatus*; 15498 *sessilis*; 15574, 15634 *fruticosus*; 15648 *diffusus*; 16665 *sessilis*; 16686 *fruticosus*; 16939, 16966 *sessilis*; 17882 *fruticosus*; 17913 *nitidus*; 18836 *crispus*; 18949 *diffusus*; 19057 *campanuloides*; 19350 *campanuloides*; 19387, 19454 *fruticosus*; 21925 *campanuloides*.
- E. J. CROSS. 2 *nitidus*.
- DAVIDSON. 16 *pedunculatus*.
- DINTER. 3395 ?*Hildebrandtii*; 4478 *Hildebrandtii*; 8296 *Hildebrandtii*.
- DRÈGE. 1949, 1949a, 1949b *brevilobus*; 6324, 6325, 6326 *diffusus*; 6327, 6327a *fruticosus*; 6328 *lycopodioides*; 6329 *pedunculatus*; 6330 *campanuloides* & *crispus*; 8330b *crispus*; 6330c *campanuloides* & *crispus*.
- ECKLON. 152 *sessilis*; 155 *nitidus*; 994 *diffusus*.
- ECKLON & ZEYHER. 3 *pedunculatus*; 9 *crispus*; 16 *nitidus*; 17 *sessilis*; 81 *campanuloides* & *fruticosus*; 101 *campanuloides*; 1078 *fruticosus*; 2373 *fruticosus*; 2389 *diffusus*; 2390 *pedunculatus*; 2391 *pedunculatus*; 2393 *fruticosus*; 2395 *brevilobus*; 2396 *campanuloides*; 2397 *crispus*; 2398, 2399 *campanuloides*; 2401 *Candolleanus*; 2402 *tenerrimus*; 2403 *nitidus*; 3146 *pedunculatus*; "94:11" *pedunculatus*; "1:11" *diffusus*.
- ESTERHUYSEN. 469 *nitidus*; 736 *pedunculatus*; 1299 *pedunculatus*; 1421 *crispus*; 1422 *crispus* & *Hildebrandtii*; 1578 *alpinus*; 1659 *brevilobus*; 1712 *debilis*; 1733 *alpinus*; 1909 *lycioides*; 1983 *fruticosus*; 2494 *diffusus*; 2546 *fruticosus*; 2787 *decurrens*; 3074 *fruticosus*; 3650 *fruticosus*; 3662 *pedunculatus*; 3710, 3954, 4049, 4102, 4140 *fruticosus*; 4389 *brevilobus*; 4400 *pedunculatus*; 4438 *crispus*; 4442 *diffusus*; 4448, 4463, 4465, 4469, 4486 *pedunculatus*; 4592 *fruticosus*; 4927 *tenerrimus*; 4992 *tenerrimus*; 4993 *Schlechteri*; 5074 *campanuloides*; 7135 *pedunculatus*; 7148 *crispus*; 7397, 7592 *fruticosus*; 7843 *sessilis*; 8598 *lycopodioides*; 8606, 8630, 8655 *brevilobus*; 8738, 8751, 8765 *brevilobus*; 8774 *fruticosus*; 9220 *pedunculatus*; 9861 *brevilobus*; 9893 *alpinus*; 9914 *pedunculatus*; 9915 *brevilobus*; 10033 *sessilis*; 10053 *nitidus*; 10082 *fruticosus*; 10855 *Rogersii*; 11103 *fruticosus*; 11344 *fruticosus*; 11381 *lycopodioides*; 11407 *sessilis*; 11485 *diffusus* & *tenerrimus*; 11487 *fruticosus*; 11495 *sessilis*; 12417 *brevilobus*; 12540, 12584 *sessilis*; 12749 *fruticosus*; 13431 *fruticosus*; 13374 *debilis*; 13375 *fruticosus*; 13519 *fruticosus*; 13536 *debilis*; 13625 *virgatus*; 13674 *cordifolius*; 13716 *sessilis* v. *macrocarpus*; 13729 *lycopodioides*; 13753, 13795 *brevilobus*; 13815 *pauciflorus*; 13820 *brevilobus* & *decurrens*; 13823 *brevilobus* & *decurrens*; 13904 *debilis*; 14139 *pedunculatus*; 14304 *altiflorus*; 14356 *fruticosus*; 14362 *brevilobus*; 14363 *lycopodioides*; 14376, 14378 *nitidus* v. *ovatus*; 14436 *lasiophyllus*; 14720 *pedunculatus*; 14856 *tenellus*; 14862 *debilis*; 14987 *diffusus*; 15031, 15088 *debilis*; 15124, 15168 *brevilobus*; 15935 *tenellus*; 16672 *debilis*; 16674 *tenellus*; 16684 *tenellus*; 16918 *implicatus*; 17661 *lycopodioides* v. *hispidus*; 17844 *altiflorus*; 17849 *crispus*; 17866 *fruticosus*; 18307 *debilis*; 18319 *lycopodioides*; 18446 *brevilobus*; 18473 *virgatus*; 18483 *brevilobus*; 19513 *campanuloides*; 19643 *pedunculatus*; 19760 *brevilobus*; 19768, 19831 *alpinus*; 19897 *brevilobus*; 19994 *tenellus*.
- FINE. G72 *pedunculatus*.
- FLANAGAN. 2454 *sessilis*; 3162 *rhodesicus*.
- FOURCADE. 1179, 1873 *campanuloides*; 3254 *Rogersii*; 3852 *Candolleanus*; 4528 *virgatus*; 5535 *Rogersii*; 6371 *Candolleanus*.
- GALPIN. 4309 *pedunculatus*; 9906, 9920 *campanuloides*; 10616 *fruticosus*; 10618 *diffusus*; 10719 *crispus*; 10836 *campanuloides*; 12311 *diffusus*; 12323

- diffusus*; 12317, 12342 *fruticosus*; 12418 *sessilis* v. *macrocarpus*; 12620, 12621 *brevilobus*; 12627 *fruticosus*; 12628 *fruticosus*; 12631 *diffusus*; 12718 *sessilis* v. *macrocarpus*; 12724, 12733 *sessilis*; 12738 *brevilobus*; 12849 *sessilis*.
- GARSDIE. 443 *diffusus*; 447 *brevilobus*; 677 *fruticosus*; 1208 *diffusus*.
- GILLETT. 539 *nitidus*; 630 *sessilis*; 663 *tenerrimus*; 680 *diffusus*; 689 *brevilobus*; 726 *campanuloides* v. *dentatus*; 740 *diffusus*; 791 *diffusus*; 844 *campanuloides*; 847, 865 *fruticosus*.
- GILMAN. 1963 *diffusus*.
- GODMAN. 779 *pedunculatus*.
- A. L. GRANT. 2257 *diffusus*.
- GUTHRIE. 999 *fruticosus*; 1490 *nitidus*; 1501 *fruticosus*; 2176 *diffusus*; 2273 *fruticosus*; 2653 *pedunculatus*; 2762 *fruticosus*; 3662 *diffusus*; 4345 *campanuloides*.
- HAFSTROM & ACOCK. 1502 *campanuloides*; 2007 *pedunculatus*; 2009 *tenerrimus*.
- HARVEY. 219, 247, 267 *sessilis*; 5020 *nitidus*.
- HUTCHINSON. 1462 *campanuloides*.
- JOHNSON. 4 *campanuloides*; 7253 *brevilobus*.
- LAUGHTON. 132 *hispidus*.
- LEIGHTON. 924 *sessilis*; 2378 *crispus*; 2612, 2833 *campanuloides*.
- LEIPOLDT. 570, 571 *pedunculatus*; 641, 659, 670 *fruticosus*; 3709, 3710 *fruticosus*; 3711 *diffusus*; 4348 *fruticosus*; 4349 *diffusus*.
- LEVYNS. 558, 1341, 3276, 3475, 4421 *pedunculatus*; 5097 *fruticosus*.
- LEWIS. 58479 *diffusus*.
- LIEBENBERG. 4322 *pedunculatus*.
- F. R. LONG. 286, 535, 541 *campanuloides*.
- MACOWAN. 922, 1083 *campanuloides*; 2955 *diffusus*; 3177 *fruticosus*.
- MARLOTH. 1648, 2363 *alpinus*; 2366 *fruticosus*; 2368 *alpinus*; 3424 *nitidus*; 5599, 8150 *diffusus*; 8355 *campanuloides*; 8408, 9483 *sessilis*; 10002, 10102 *diffusus*; 11840 *pedunculatus*; 12013 *diffusus*; 12098 *fruticosus*; 12550 *crispus*.
- B. MARLOTH. 9, 48 *diffusus*.
- R. H. MARLOTH. 110 *fruticosus*.
- B. MARTIN. 298 *brevilobus*.
- MEYER. 1869 *Hildebrandtii*.
- MILNE. 169 *sessilis*.
- MOSS. 7432 *fruticosus*; 7503 *sessilis*; 7505 *fruticosus*.
- MOSS & ROGERS. 1531 *diffusus*; 1550 *diffusus*.
- MUIR. 1283 *campanuloides*; 1371 *cliffortioides*; 1957 *campanuloides*; 2781 *pedunculatus*.
- NORMAN. 328 *diffusus*.
- PATERSON. 485, 1212 *campanuloides*; 1253 *Rogersii*; 19094 *diffusus*.
- PEARSON. 3524, 5126, 5280 *pedunculatus*; 5332 *crispus*; 5720 *diffusus*; 5309 *diffusus*; 7120, 7202 *pedunculatus*; 9060 *indet.*
- PENFOLD. 248 *brevilobus*.
- PENTHER. 2750 *brevilobus*; 2757 *campanuloides*.
- E. P. PHILLIPS. 1795 *brevilobus* & *diffusus*; 1976 *brevilobus*; 1977 *fruticosus*; 1979 *alpinus*.
- PILLANS. 2378 *crispus*; 6102 *diffusus*; 7129 *crispus*; 7915, 8587 *pedunculatus*; 8588 *crispus*; 8618, 8709 *pedunculatus*; 8731 *altiflorus*; 8772, 9060 *pedunculatus*; 9586 *crispus*.

- Pocock. S.116 *tenerrimus*.
 RATTRAY. 1382 *campanuloides*.
 REHMANN. 2408 *diffusus*; 2470 *fruticosus*; 2474 *pedunculatus*; 2477 *tenellus*; 2594 *fruticosus*; 2694, 5889 *fruticosus*.
 RODIN. 3074 *fruticosus*; 3079 *diffusus*; 3255 *nitidus* v. *ovatus*; 3271 *diffusus*.
 ROGERS. 193 *campanuloides*; 3259 *campanuloides*; 5617 *rhodesicus*; 10517 *diffusus*; 16199 *Rogersii*; 16851 *fruticosus*; 17327 *diffusus*; 27638 *campanuloides*; 29286 *diffusus*.
 RYDER. 64 *campanuloides*.
 SALTER. 292/22 *nitidus*; 292/23 *sessilis*; 292/30 *fruticosus*; 371/17 *campanuloides*; 373/11 *diffusus*; 376/41 *campanuloides*; 376/42 *hispidus*; 1794 *crispus*; 1924, 2010 *diffusus*; 2011 *fruticosus*; 2023, 2028 *brevilobus*; 2041 *fruticosus*; 2076, 2119 *brevilobus*; 2979 *diffusus*; 3252 *hispidus*; 4219 *sessilis* v. *macrocarpus*; 4225 *diffusus*; 4257 *sessilis* v. *macrocarpus*; 4284 *sessilis*; 5155 *tenerrimus*; 5945 *fruticosus*; 7991 *nitidus*.
 SCHLECHTER. 23, 224 *sessilis*; 306 *fruticosus*; 505 *nitidus*; 1160 *diffusus*; 2400 *campanuloides*; 5630 *pedunculatus*; 7274 *fruticosus*; 7283 *diffusus*; 7350 *brevilobus*; 7375 *fruticosus*; 7670 *Schlechteri*; 9050, 9070 *pedunculatus*; 9171 *lycopodioides*; 9766 *tenerrimus* (p.pt); 9768 *tenerrimus*; 9775 *debilis* v. *elongatus*; 9882 *debilis*; 10181 *pedunculatus*; 10284 *campanuloides*; 10298 *debilis*; 10319 *tenerrimus*; 10385 *sessilis*; 10595 *campanuloides*.
 SCOTT-ELLIOTT. 221 *diffusus*.
 C. A. SMITH. 4277 *campanuloides*; 7283 *diffusus*.
 STEPHENS. 6379 *pedunculatus*.
 STOKOE. 1096 *diffusus*; 3096 *fruticosus*; 7165 *diffusus*; 7545 *campanuloides*; 9110 *tenerrimus*; 9380 *pedunculatus*; 58486 *fruticosus*; 58487 *campanuloides*.
 STORY. 2403 *campanuloides*; 3594 *pedunculatus*.
 L. E. TAYLOR. 1634 *Rogersii*.
 THEILER. 51 *diffusus*.
 THODE. A2164 *crispus*; A2257 *diffusus*.
 TYSON. 744 *fruticosus*; 799 *diffusus*; 925 *diffusus*; 961 *fruticosus*; 3053 *diffusus*.
 VAN BREDA. 181 *pedunculatus*; 228 *fruticosus*.
 WALGATE. 245 *fruticosus*; 345a *pedunculatus*.
 WALL. 18, 80/39, 82/39, 84/39 *fruticosus*; 502/53 *sessilis*.
 WALLICH. 411 *sessilis*.
 WASSERFALL. 170, 777 *fruticosus*; 806 *pedunculatus*; 821 *diffusus*.
 WOLLEY-DOD. 181 *fruticosus*; 276, 297 *sessilis*; 676 *nitidus*; 677 *nitidus*; 849 *nitidus*; 1966 *fruticosus*; 2128, 2611 *sessilis*.
 ZEYHER. 101, 203 *campanuloides*; 278 *sessilis*; 377 *diffusus*; 750 *sessilis*; 1021 *diffusus*; 1077 *pedunculatus*; 1078, 1078a, 1078b *fruticosus*; 1079 *diffusus*; 1080 *sessilis*; 1081 *diffusus*; 2393 *fruticosus*; 2398 *campanuloides*; 3145, 3145a, 3145b *pedunculatus*; 3146 *pedunculatus*; 3147 *fruticosus*; 3148 *campanuloides*; 4902 *nitidus*.
- Roella.
 ACCOCK. 1255 *ciliata*; 2316 *prostrata*; 2848 *amplexicaulis*; 3962 *ciliata*; 3956 *prostrata*; 4901 *muscosa*; 9550 *glomerata*; 10906 *glomerata*.
 ADAMSON. 183 *Goodiana*; 522 *prostrata*; 656, 670 *ciliata*; 686 *ciliata*; 688 *amplexicaulis*; 689 *ciliata*; 689A *ciliata* × *triflora*; 693 *prostrata*; 694 *amplexicaulis*; 695 *triflora*; 701, 741 *ciliata* × *triflora*; 823 *Goodiana*; 827 *amplexicaulis*; 855 *prostrata*; 1584 *amplexicaulis*; 1597 *ciliata* × *triflora*; 1617, 1620 *squar-*

rosa; 1627 *muscosa*; 1642 *squarrosa*; 1653, 1654 *triflora*; 1678 *amplexicaulis*; 1722 *recurvata*; 1726 *prostrata*; 1752 *squarrosa*; 1763, 1764 *triflora*; 2351, 2389 *triflora*; 2402 *amplexicaulis*; 2407, 2433 *triflora*; 2434 *squarrosa*; 2456 *prostrata*; 2461A *compacta*; 2468 *amplexicaulis*; 2469 *recurvata*; 2473 *squarrosa*; 2738 *muscosa*; 2768 *recurvata*; 2769, 2774 *prostrata*; 3156 *recurvata*; 3315 *ciliata*; 3487 *prostrata*; 3494 *decurrens*; 3496 *recurvata*; 3569, 3636, 3739 *Dregeana*; 3777 *rhodantha*; 3841, 3850 *incurva*; 3852 *incurva* $\times$ *maculata*; 3853 *incurva*; 3854, 3855, 3856 *incurva* $\times$ *maculata*; 3857 *maculata*; 3859, 3860 *incurva*; 3861 *incurva* $\times$ *maculata*; 3881 *maculata*; 3891, 3892 *incurva* v. *rigida*; 3893 *rhodantha*; 3894 *rhodantha*; 3895, 3897 *incurva* v. *rigida*; 3902 *secunda*; 3903 *rhodantha*; 3904 *incurva* $\times$ *rhodantha*; 3905 *incurva* v. *rigida*; 3912 *incurva* $\times$ *rhodantha*; 3913 *rhodantha*; 3915, 3916 *incurva* $\times$ *rhodantha*; 3917 *rhodantha*; 3918 *secunda*; 3920, 3921 *maculata*; 3926 3927, 3928, 3929 *ciliata*; 4020, 4025 *ciliata*; 4028, 4030, 4032 *incurva*; 4034 *ciliata*; 4037, 4039, 4044 *Dunantii*; 4045 *ciliata*; 4047 *incurva* $\times$ *maculata*; 4048 *incurva*; 4049, 4050, 4051, 4069 *incurva*; 4081, 4084, 4091, 4094, 4098, 4100, 4101, 4103, 4104 *incurva*; 4128, 4129 *incurva*; 4134, 4135, 4136, 4137, 4140, 4141, 4142, 4143A, 4144, 4145, 4146, 4147, 4148, 4149, 4150, 4151, 4152, 4153, 4154, 4155 *incurva*; 4158 *ciliata*; 4160, 4161 *maculata*; 4162A, 4163 *incurva*; 4167 *incurva* $\times$ *maculata*; 4168, 4169 *maculata*; 4170 *incurva*; 4175 *maculata*; 4176, 4177 *incurva*; 4178 *maculata*; 4179, 4182, 4186 *incurva*; 4189 *psammophila*; 4191 *incurva* $\times$ *psammophila*; 4192 *incurva* $\times$ *psammophila*; 4193, 4194 *psammophila*; 4195, 4196 *incurva* $\times$ *psammophila*; 4198 *psammophila*; 4202, 4205 *incurva* $\times$ *psammophila*; 4206, 4207, 4211, 4212, 4213 *incurva*; 4218, 4219 *incurva*; 4301, 4307 *incurva*; 4309, 4313, 4315 *incurva* $\times$ *rhodantha*; 4317 *incurva*; 4317A *incurva* $\times$ *rhodantha*; 4321 *incurva*; 4352, 4363 *spicata*; 4368, 4371, 4374 *spicata*; 4412, 4413, 4418, 4419, 4420 *incurva*; 4421 *cuspidata*; 4427, 4430, 4436, 4438 *incurva*; 4441 *Dregeana*; 4443, 4451 *incurva*; 4452 *cuspidata*; 4455 *prostrata*; 4454 *muscosa*; 4456, 4457 *incurva* $\times$ *maculata*; 4458, 4459, 4460 *incurva*.

ANDREAE. A251 *squarrosa*; 1089 *triflora*.

BARKER. 199 *ciliata*; 698 *triflora*; 1200 *incurva*; 1289 *glomerata*; 2431 *ciliata*; 3343 *incurva*; 3949 *prostrata*; 3955 *triflora*; 4018 *amplexicaulis*; 5279 *incurva*; 5293 *compacta*; 7195 *cuspidata*.

BOLUS. 78 *prostrata*; 86 *ciliata*; 2268 *prostrata*; 2763 *secunda*; 2981 *amplexicaulis* & *squarrosa*; 3291 *prostrata*; 3323 *ciliata* & *incurva*; 3885 *muscosa*; 4060 *Dregeana*; 4714 *triflora*; 6949 *cuspidata*; 7881 *secunda*; 7966 *decurrens*; 8571 *cuspidata*; 8572 *compacta*; 8750 *incurva* & *arenaria*; 8752 *arenaria*; 9235 *cuspidata*; 11426 *squarrosa*; 12102 *secunda*.

BOND. 922 *spicata*; 964 *muscosa*.

BRITTEN. 3114 *incurva*.

BURCHELL. 96 *ciliata*; 636 *muscosa*; 639 *muscosa*; 874 *ciliata*; 4481 *secunda*; 4645 *spicata*; 6677 *indet.*; 6849 *spicata* v. *Burchellii*; 7884, 7957 *incurva*; 7923 *spicata*; 7986 *spicata*; 8144 *Dregeana*; 8532 *ciliata*.

BURTT-DAVY. 18532 *incurva*; 18566 *incurva*.

DE CASTELNAU. 294 *secunda*; 370 *ciliata*; 371 *prostrata*; 447 *ciliata*.

COMPTON. 5289 *spicata*; 8173 *incurva*; 8482 *squarrosa*; 8542 *squarrosa*; 8709 *decurrens*; 10229 *incurva*; 10264 *arenaria*; 10624 *amplexicaulis*; 12377 *incurva*; 12939 *muscosa*; 12998 *amplexicaulis*; 13002 *triflora*; 13016 *squarrosa*; 14257 *incurva*; 14282 *amplexicaulis*; 14287 *triflora*; 14457 *squarrosa*; 14546

triflora; 15483 *squarrosa*; 16819 *incurva*; 16940 *prostrata*; 16944 *ciliata* × *triflora*; 17377 *decurrens*; 17921 *prostrata*; 18956 *incurva*; 19031 *compacta*; 19368 *recurvata*; 19408 *psammophila*; 20375 *triflora*; 20411 *incurva* v. *rigida*; 20440 *incurva*; 20997 *cuspidata* v. *hispida*; 21839 *triflora*; 21847 *amplexicaulis*; 21887 *squarrosa*.

DEBEAUX. 13 *ciliata*.

DREGE. 6305 *muscosa*; 6321 *spicata*; 6322 *latiloba*; 6323 *recurvata*; 4011 *glomerata*; 7837 *incurva*.

ECKLON. 64 *ciliata*; 81 *incurva* & *ciliata*; 283 *prostrata*; 286 *incurva*; 694 *ciliata*; 696 *squarrosa*; 2405 *ciliata*; 2416 *indet.* 2445 *ciliata*.

ECKLON & ZEYHER. 4 *Dunantii*; 92:10 *ciliata*; 2405 *incurva*, *ciliata* & *Dunantii*; 2406 *bryoides*, *ciliata* & *prostrata*; 2407 *bryoides* & *incurva*; 2408 *prostrata* & *spicata*; 2409 *prostrata*; 2410 *spicata*; 2411 ?*bryoides*; 2412 *squarrosa*; 2413 *muscosa*; 2414 *secunda*; 2415 *secunda*; 2416 *spicata*.

ELLIOT. 63 *ciliata*; 113 *ciliata*.

ESTERHUYSEN. 1 *decurrens*; 1B *decurrens*; 36 *decurrens*; 48, 48A *ciliata*; 2893 *ciliata*; 3511 *incurva*; 4228 *incurva*; 4693 *spicata*; 5019 *psammophila*; 8624 *Dreg-eana*; 9984 *muscosa*; 10034, 11389 *squarrosa*; 12595 *maculata*; 12616 *incurva*; 12630 *decurrens* & *squarrosa*; 14373 *muscosa*; 15191 *ciliata*; 16777 *spicata*; 16791 *spicata*; 28393 *ciliata*.

FAIRALL. 197 *amplexicaulis*.

FLANAGAN. 460 *glomerata*; 2403 *decurrens*.

FOURCADE. 2073 *spicata*; 2486 *spicata*; 5910, 5917 *spicata*.

FRIES. 3001 *ciliata*.

GALPIN. 3129 *glomerata*; 4308 *ciliata*; 4314 *incurva*; 4905 *squarrosa*; 11245, 11245a *cuspidata*; 11302 *incurva*; 12293, 12294 *incurva*; 12299 *prostrata*; 12448 *triflora*; 12555 *squarrosa* & *recurvata*; 12722 *prostrata*; 12723 *recurvata*; 12724 *amplexicaulis*.

GARSDIE. 1167 *ciliata*.

GERRARD. 395 *glomerata*; 623 *glomerata*; 1502 *glomerata*.

GERRARD & MCKEN. 872 *glomerata*.

GILLET. 561 *incurva*; 571 *psammophila*; 618 *maculata*; 625 *incurva*; 687, 688 *incurva*; 770 *squarrosa*.

GILMORE. 20749 *incurva*.

GODMAN. 856 *triflora*.

A. L. GRANT. 2627 *ciliata*.

GUTHRIE. 304 *prostrata*; 998 *ciliata*; 1375 *amplexicaulis* & *triflora*; 4480 *cuspidata*; 4956 *cuspidata*.

HAFSTROM & ACOCK. 2010 *spicata*.

HARVEY. 11 *ciliata*; 454 *ciliata*; 579 *squarrosa*; 1153 *spicata*; 12116 *Dregeana*.

HENDERSON. 1404 *ciliata*.

HILNER. 280 *glomerata*.

JAMESON. 13 *ciliata*.

KENSIT. 11426 *squarrosa*.

KIES. 13 *decurrens*.

LEIGHTON. 901 *incurva*; 2343 *compacta*; 2463 *incurva*.

LEVYNS. 2695 *maculata*; 3129 *ciliata*; 5133 *Goodiana*; 5511 *prostrata*; 5616 *amplexicaulis*; 5617 *recurvata*; 8798 *psammophila*.

F. R. LONG. 497 *spicata*; 926 *spicata*.

W. J. LOUW. 133 *ciliata*.

- MACGILLIVRAY. 657 *ciliata*; 658 *triflora*; 659 *amplexicaulis*.
 MACOWAN. 78 *prostrata*; 86 *ciliata*; 1633 *glomerata*; 2366 *ciliata*; 3013 *Dunantii*;
 3059 *prostrata*; 3291 *prostrata*.
 MARLOTH. 110 *incurva*; 405 *ciliata*; 5933 *ciliata*; 8410 *prostrata*; 10009 *Dunantii*.
 B. MARTIN. 622 *incurva*.
 MILNE. 154 *amplexicaulis*; 181 *ciliata*; 213 *triflora*.
 MOGG. H13686, H13746 *squarrosa*.
 MORRIS. 5 *decurrens*.
 MOSS. 1702 *decurrens*; 5056 *ciliata*; 5057 *prostrata*; 7433 *incurva*; 7433 bis *maculata*;
 7491 *amplexicaulis*; 7506, 7507 *triflora*; 7508 *Goodiana*; 7530 *muscosa*;
 7554 *ciliata*; 7558 *squarrosa*; 7561 *ciliata*; 9019 *ciliata*; 9837 *prostrata*;
 15323 *spicata*; 17465 *ciliata*; 18992 *prostrata*; 18993 *decurrens*; 19002
amplexicaulis; 21338 *secunda*; 24891 *ciliata*.
 MOSS & ROGERS. 18993 *squarrosa*.
 MUIR. 3166 *secunda*.
 NAUDE. 49 *ciliata*.
 PATERSON. 92 *ciliata*.
 PENTHER. 2736 *ciliata*; 2759 *insizvae*.
 PILLANS. 2543 *compacta*; 6750 *incurva*; 8157 *compacta*; 8195 *incurva & maculata*;
 8206 *maculata*; 9441 *rhodantha*.
 POTTS. 1795 *glomerata*; 5016 *incurva*.
 REHMANN. 1045 *ciliata*; 1046 *ciliata*.
 RODIN. 3101 *incurva*.
 ROGERS. 1069 *ciliata*; 16985 *ciliata*; 17405 *incurva*.
 RYDER. 153 *amplexicaulis*; 154 *ciliata*;
 SALTER. 292/11, 292/11B *triflora*; 292/12 *ciliata* $\times$ *triflora*; 292/12A *amplexicaulis*;
 292/13 *prostrata*; 292/14 *compacta*; 292/16 *recurvata*; 292/17A *Goodiana*;
 292/17B *squarrosa*; 292/19 *squarrosa*; 292/22 *ciliata* $\times$ *triflora*; 1883 *triflora*;
 1905, 1919 *triflora*; 1943 *Goodiana*; 1944 *triflora*; 1958 *squarrosa*; 2000
triflora; 2029 *incurva*; 2035 *ciliata*; 2956 *prostrata*; 2993, 2993A *squarrosa*;
 3245 *spicata*; 4112 *compacta*; 4175 *incurva*; 4176 *incurva*; 4217 *Dunantii*
& prostrata; 4263 *recurvata*; 4274 *prostrata*; 4322 *squarrosa*; 5172 *maculata*;
 5214, 5214A 5219, 5225 *incurva*; 5733 *triflora*; 5756 *amplexicaulis*; 5759
triflora; 5773 *decurrens*; 5783 *squarrosa*; 5801 *Goodiana*; 5826 *recurvata*;
 5889 *amplexicaulis*; 6492 *ciliata* $\times$ *prostrata*; 8008 *compacta*; 8710 *ciliata*.
 SCHLECHTER. 10 *ciliata*; 164 *muscosa*; 209 *triflora*; 302 *prostrata*; 598 *amplexicaulis*;
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 7397 *lightfootioides*; 7401 *cuspidata*; 7436 *psammophila*; 7483 *Dregeana* v.
nitida; 9179 *Dregeana*; 9691 *arenaria*; 9714 *compacta*; 9858 *Dunantii &*
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 SCOTT-ELLIOTT. 95 *ciliata*.
 SHANTZ. 60 *ciliata*.
 SIEBER. 78 *ciliata*.
 C. A. SMITH. 2524 *maculata*; 3829 *glomerata*; 5033 *latiloba*.
 STEUDEL. 2405 *ciliata*.
 L. E. TAYLOR. 1586 *compacta*.
 THODE. A2210 *incurva*; A2346 *spicata*; A2347 *spicata*.
 TYSON. 2343 *ciliata*.
 WALGATE. 431 *amplexicaulis*.
 WALL. 439/30 *spicata*; 860/8 *triflora*; 899/9 *ciliata*; 2475 *spicata*; 2485, 2491 *spicata*;
 3138 *prostrata*.

WASSERFALL. 776 *ciliata* × *prostrata*.

WEEKS. 87 bis *glomerata*.

WILMS. 3390, 3890 *ciliata*.

WOLLEY-DOD. 182 *ciliata*; 687 *prostrata*; 806 *squarrosa*; 808 *amplexicaulis* & *squarrosa*; 2208 *prostrata*; 2230 *decurrens* & *squarrosa*; 2320 *triflora*; 2395 *squarrosa*.

WOOD. 233 *glomerata*; 397 *glomerata*; 1003, 1033 *glomerata*; 5524 *glomerata*; 7504 *glomerata*.

ZEYHER. 9 *incurva*; 447 *secunda*; 694, 695 *incurva*; 748 *ciliata*; 827 *indet*; 1082 *bryoides*; 2408 *spicata* & *prostrata*; 2409 *arenaria*; 2410 *spicata*; 2414 *spicata*; 2415 *secunda*; 3149 *incurva*; 3150, 3151 *secunda*; 3417 *ciliata*, *prostrata* & *spicata*.

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